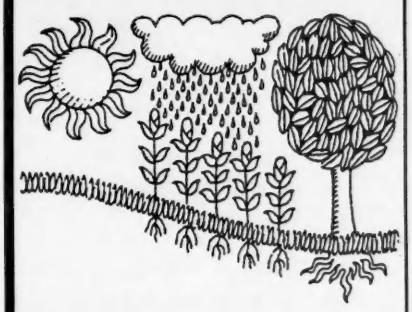
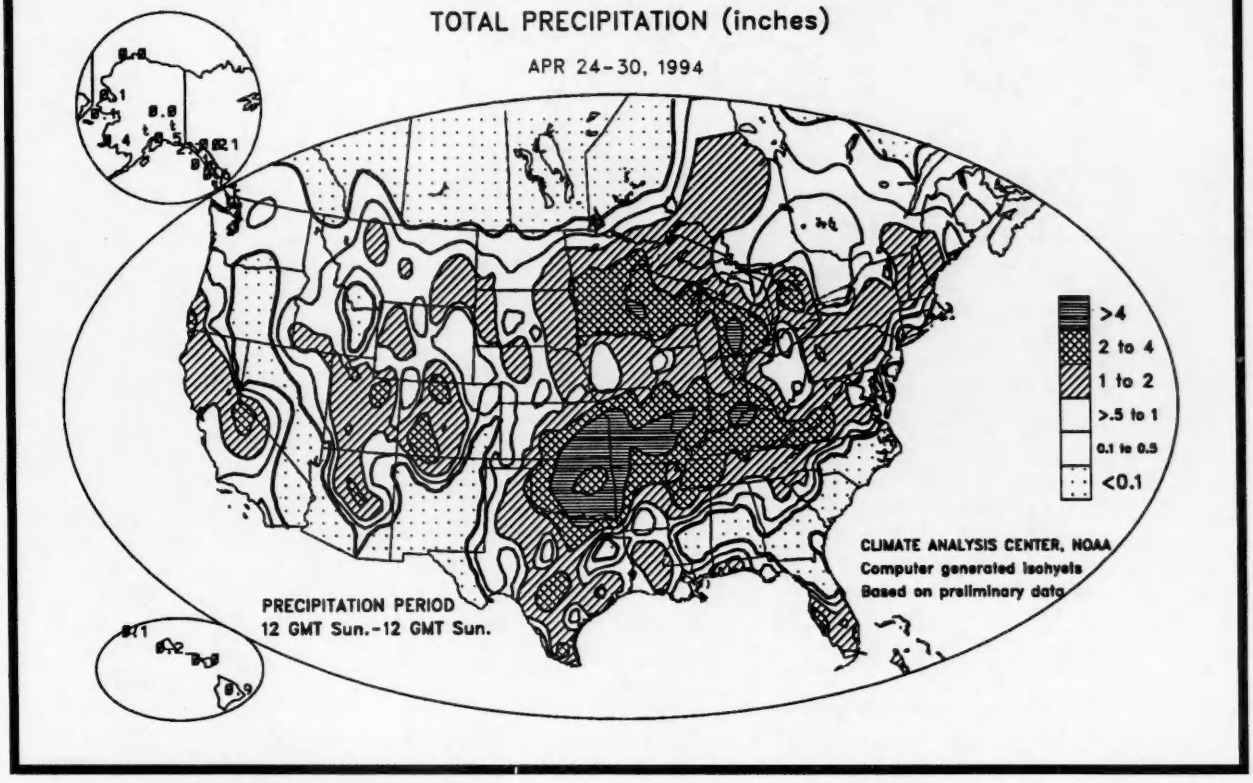


WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration, National Weather Service

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service and World Agricultural Outlook Board

Volume 81, No. 18 | Washington, D.C. | May 3, 1994



HIGHLIGHTS

April 24 - 30, 1994

An incredibly active weather pattern in the Nation's mid-section was capped by a late-week, two-storm rampage that dumped snow from **northern Texas** to the **western Great Lakes**, delivered additional heavy rain from **Oklahoma** to **Missouri**, and drove cold air deep into the **High Plains**. The incessantly cold, stormy weather halted fieldwork from the **Plains** to the **Corn Belt**, and hindered crop development.

Early-week precipitation was confined primarily to the **Northern and Western States**. Storm-total precipitation topped 1 inch at locations such as **Missoula, MT** (1.46 inches), **Miles City, MT** (1.11 inches), and **Redding, CA** (1.03 inches). Snow blanketed the higher terrain of the **West**, and rain changed to a wind-driven, wet snow across the **northern Plains**. By Wednesday morning, snow depths included 3 inches in **Great Falls, MT**,

(Continued to p. 18)

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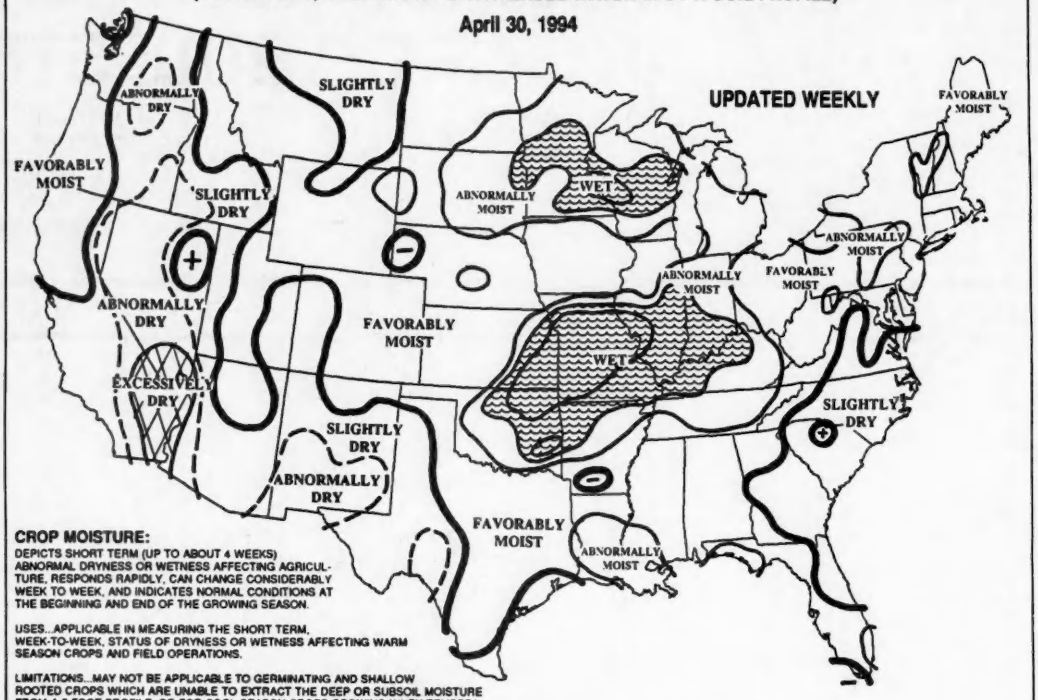
CROP MOISTURE

(SHORT TERM, CROP NEED VS. AVAILABLE WATER IN 5-FT. SOIL PROFILE)

April 30, 1994



CROP MOISTURE:

DEPICTS SHORT TERM (UP TO ABOUT 4 WEEKS) ABNORMAL DRYNESS OR WETNESS AFFECTING AGRICULTURE, RESPONDS RAPIDLY, CAN CHANGE CONSIDERABLY WEEK TO WEEK, AND INDICATES NORMAL CONDITIONS AT THE BEGINNING AND END OF THE GROWING SEASON.

USES...APPLICABLE IN MEASURING THE SHORT TERM, WEEK-TO-WEEK, STATUS OF DRYNESS OR WETNESS AFFECTING WARM SEASON CROPS AND FIELD OPERATIONS.

LIMITATIONS...MAY NOT BE APPLICABLE TO GERMINATING AND SHALLOW ROOTED CROPS WHICH ARE UNABLE TO EXTRACT THE DEEP OR SUBSOIL MOISTURE FROM A 5-FOOT PROFILE, OR FOR COOL SEASON CROPS GROWING WHEN TEMPERATURES ARE AVERAGING BELOW ABOUT 55°F. IT IS NOT GENERALLY INDICATIVE OF THE LONG TERM (MONTHS, YEARS) DROUGHT OR WET SPELLS WHICH ARE DEPICTED BY THE DROUGHT SEVERITY INDEX.

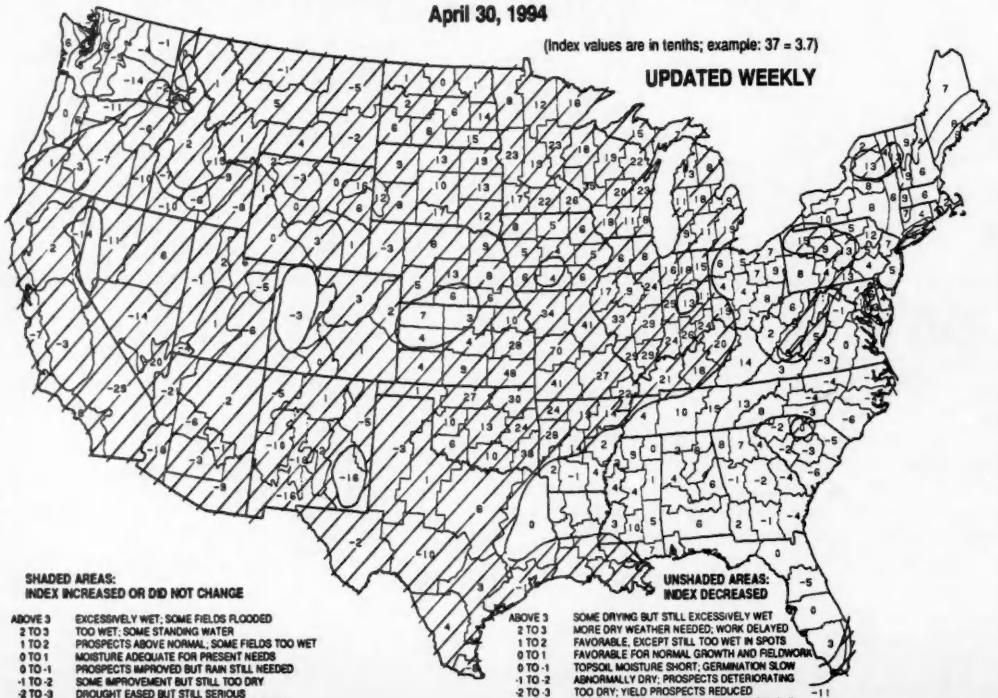
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY Based on preliminary reports

CROP MOISTURE INDEX

(SHORT TERM, CROP NEED VS. AVAILABLE WATER IN 5-FT. SOIL PROFILE)

April 30, 1994

(Index values are in tenths; example: 37 = 3.7)



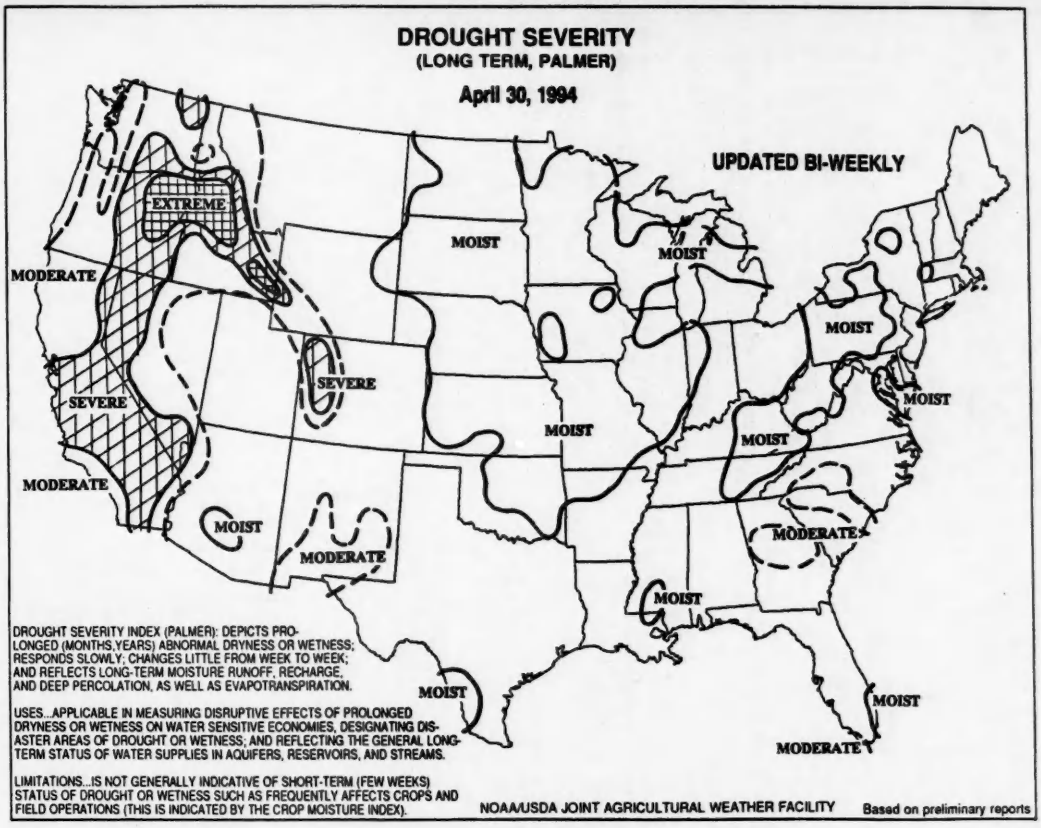
SHADED AREAS: INDEX INCREASED OR DID NOT CHANGE

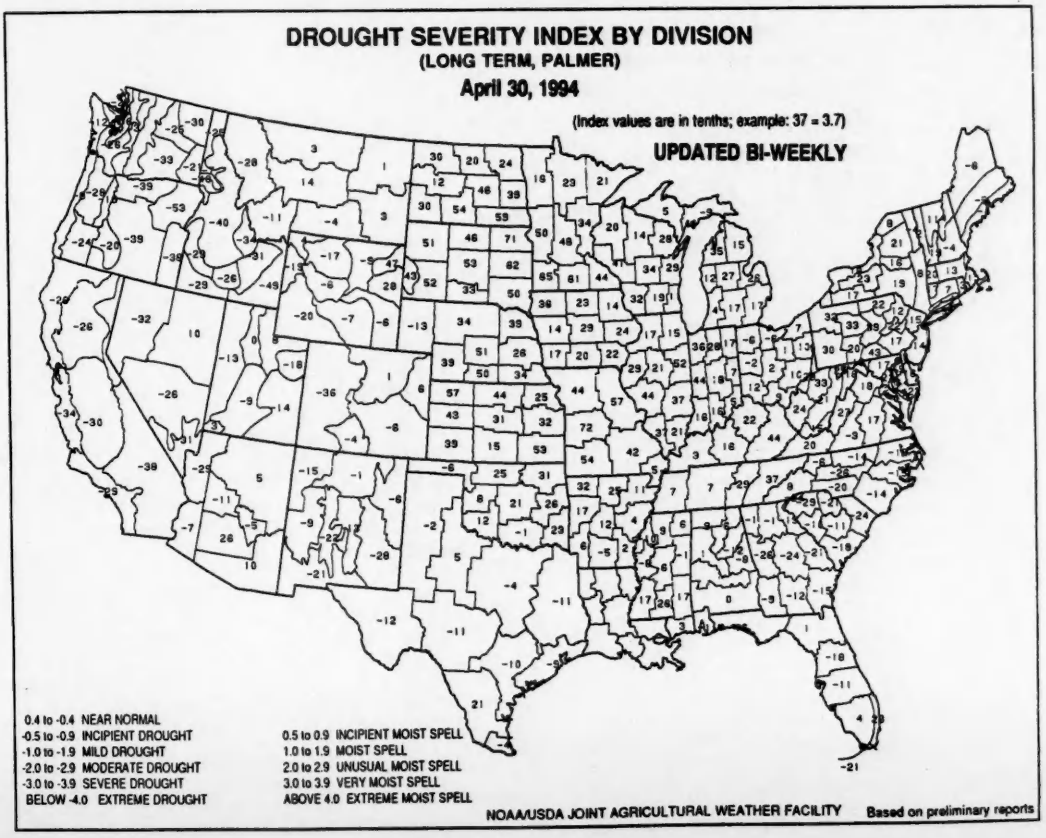
ABOVE 3	EXCESSIVELY WET; SOME FIELDS FLOODED
2 TO 3	TOO WET; SOME STANDING WATER
1 TO 2	PROSPECTS ABOVE NORMAL, SOME FIELDS TOO WET
0 TO 1	MOISTURE ADEQUATE FOR PRESENT NEEDS
0 TO -1	PROSPECTS IMPROVED BUT RAIN STILL NEEDED
-1 TO -2	SOME IMPROVEMENT BUT STILL TOO DRY
-2 TO -3	DROUGHT EASED BUT STILL SERIOUS
-3 TO -4	DROUGHT CONTINUES; RAIN URGENTLY NEEDED
BELOW -4	NOT ENOUGH RAIN; STILL EXTREMELY DRY

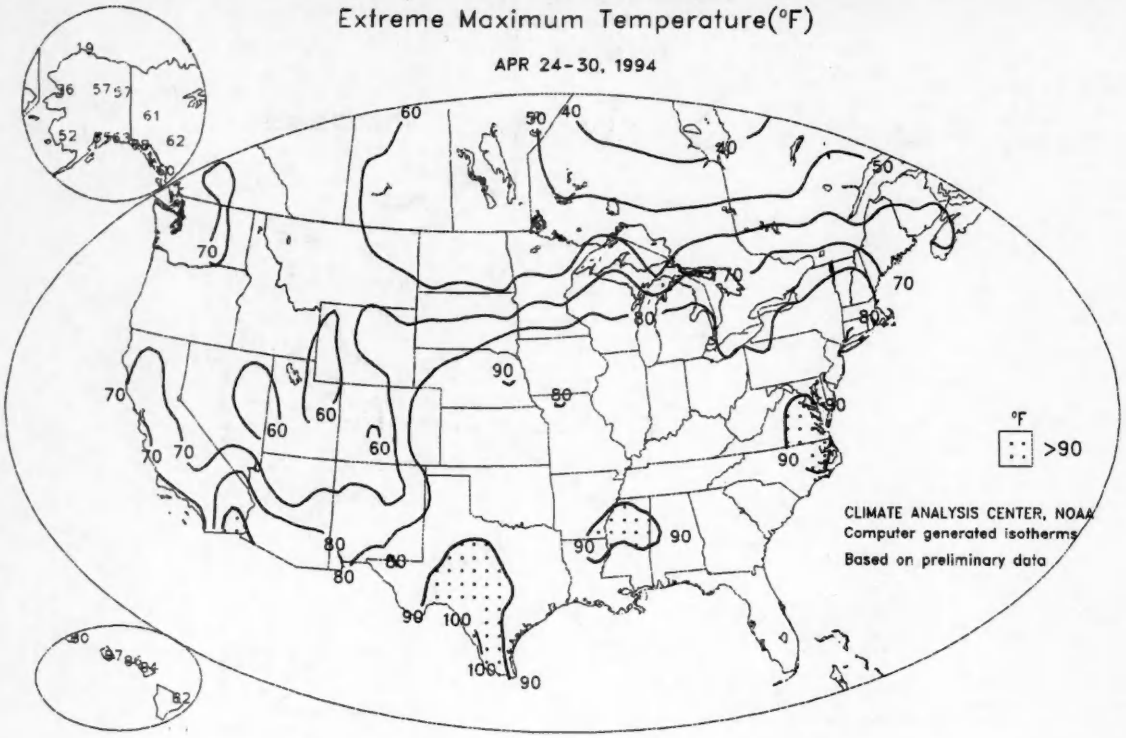
UNSHADED AREAS: INDEX DECREASED

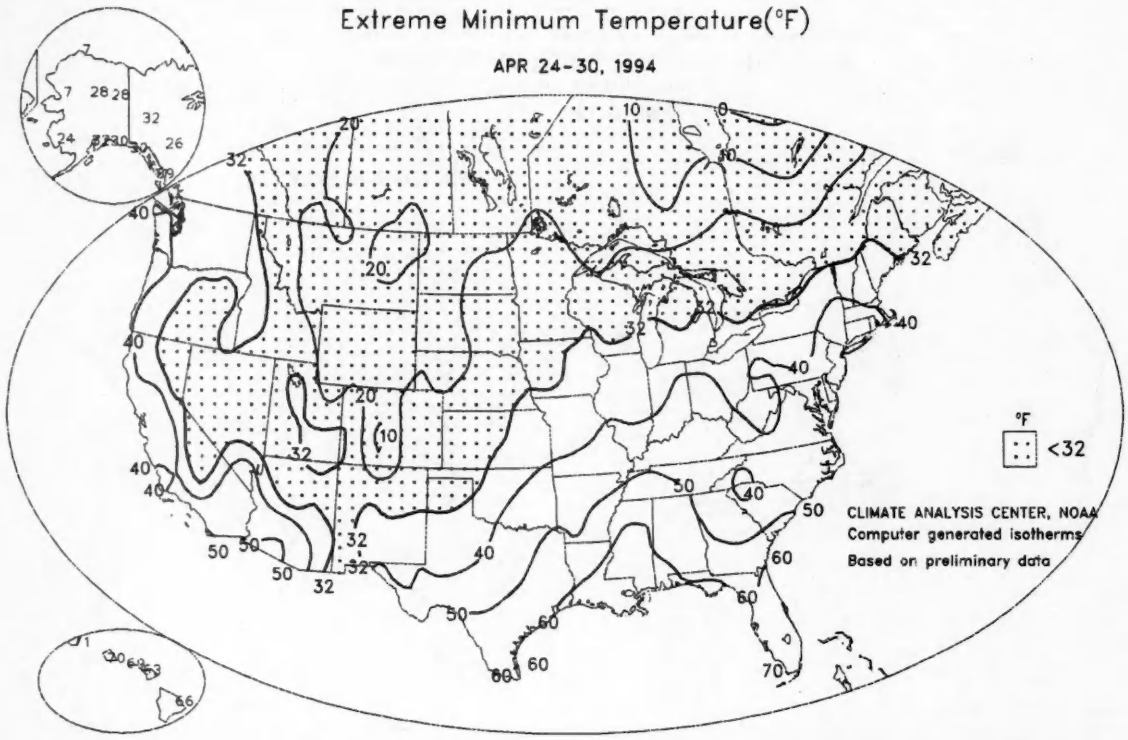
ABOVE 3	SOME DRYING BUT STILL EXCESSIVELY WET
2 TO 3	MORE DRY WEATHER NEEDED; WORK DELAYED
1 TO 2	FAVORABLE, EXCEPT STILL TOO WET IN SPOTS
0 TO 1	FAVORABLE FOR NORMAL GROWTH AND FIELDWORK
0 TO -1	TOPSOIL MOISTURE SHORT; GERMINATION SLOW
-1 TO -2	ABNORMALLY DRY; PROSPECTS DETERIORATING
-2 TO -3	TOO DRY; YIELD PROSPECTS REDUCED
-3 TO -4	POTENTIAL YIELDS SEVERELY CUT BY DROUGHT
BELOW -4	EXTREMELY DRY; MOST CROPS RUINED

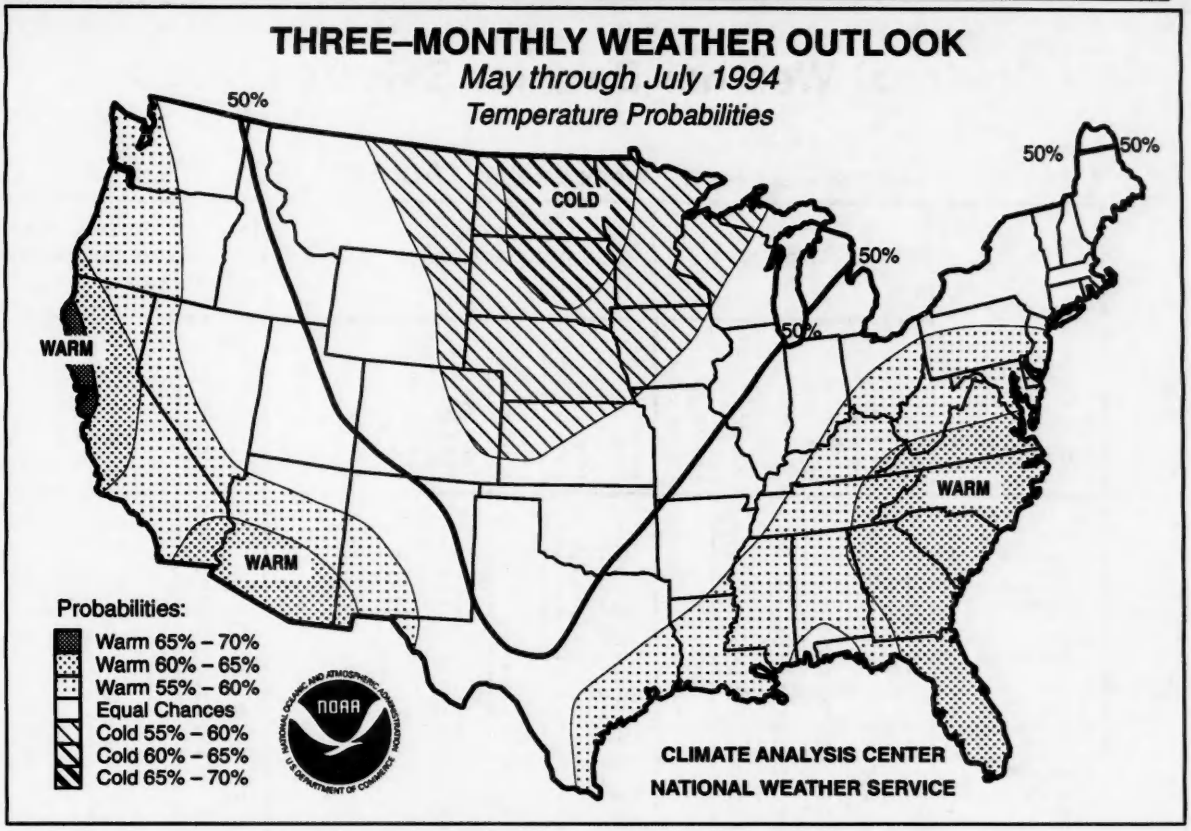
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY Based on preliminary reports

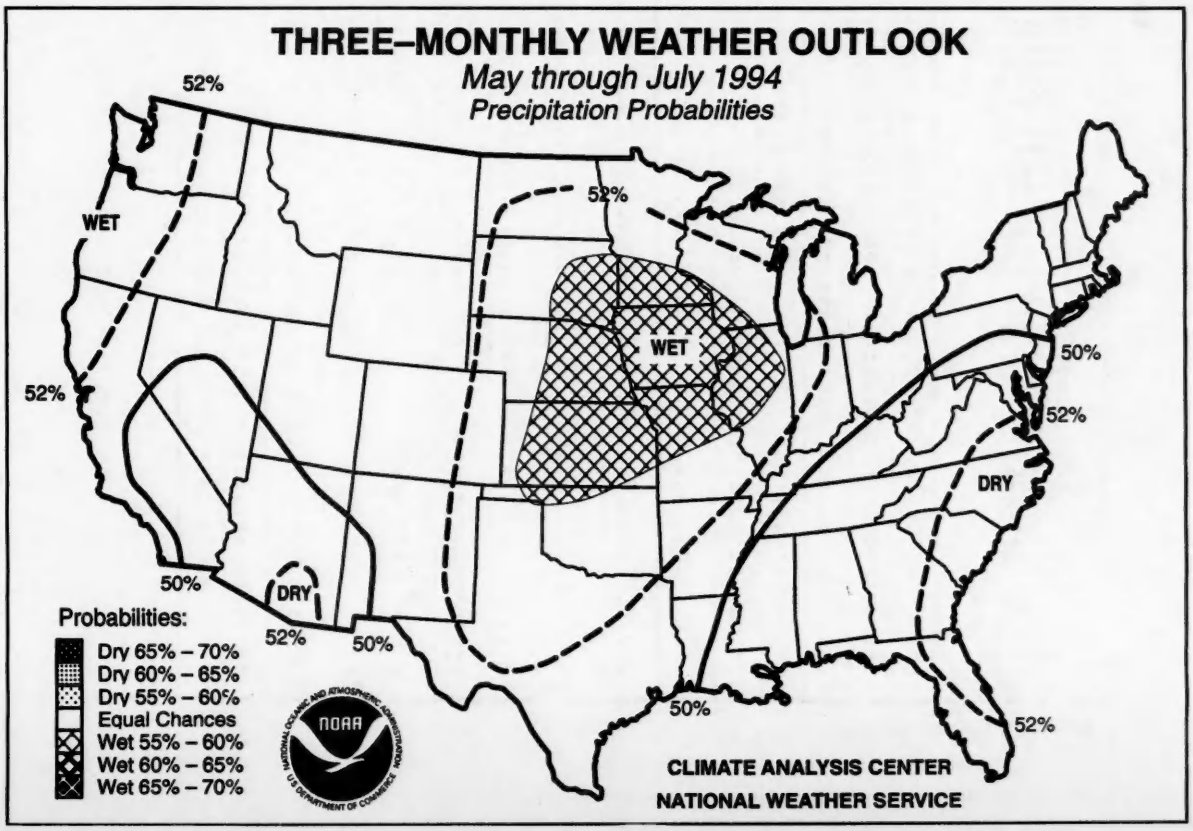

DROUGHT SEVERITY
(LONG TERM, PALMER)
April 30, 1994
UPDATED BI-WEEKLY
EXTREME
SEVERE
MODERATE
MOIST
DROUGHT SEVERITY INDEX (PALMER): DEPICTS PRO-LONGED (MONTHS,YEARS) ABNORMAL DRYNESS OR WETNESS; RESPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION, AS WELL AS EVAPOTRANSPIRATION.
USES...APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES, DESIGNATING DIS-ASTER AREAS OF DROUGHT OR WETNESS; AND REFLECTING THE GENERAL LONG-TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS, AND STREAMS.
LIMITATIONS...IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports


DROUGHT SEVERITY INDEX BY DIVISION
(LONG TERM, PALMER)
April 30, 1994
(Index values are in tenths; example: 37 = 3.7)
UPDATED BI-WEEKLY
0.4 to -0.4 NEAR NORMAL
-0.5 to -0.9 INCIPIENT DROUGHT
-1.0 to -1.9 MILD DROUGHT
-2.0 to -2.9 MODERATE DROUGHT
-3.0 to -3.9 SEVERE DROUGHT
BELOW -4.0 EXTREME DROUGHT
0.5 to 0.9 INCIPIENT MOIST SPELL
1.0 to 1.9 MOIST SPELL
2.0 to 2.9 UNUSUAL MOIST SPELL
3.0 to 3.9 VERY MOIST SPELL
ABOVE 4.0 EXTREME MOIST SPELL
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports


Extreme Maximum Temperature(°F)
APR 24-30, 1994
°F
>90
CLIMATE ANALYSIS CENTER, NOAA
Computer generated isotherms
Based on preliminary data


Extreme Minimum Temperature(°F)
APR 24-30, 1994
°F
<32
CLIMATE ANALYSIS CENTER, NOAA
Computer generated isotherms
Based on preliminary data


THREE–MONTHLY WEATHER OUTLOOK
May through July 1994
Temperature Probabilities
50%
50%
50%
50%
COLD
WARM
WARM
WARM
Probabilities:
Warm 65% – 70%
Warm 60% – 65%
Warm 55% – 60%
Equal Chances
Cold 55% – 60%
Cold 60% – 65%
Cold 65% – 70%
NOAA
CLIMATE ANALYSIS CENTER
NATIONAL WEATHER SERVICE


THREE–MONTHLY WEATHER OUTLOOK
May through July 1994
Precipitation Probabilities
52%
52%
52%
WET
WET
50%
52%
50%
DRY
DRY
50%
52%
50%
Probabilities:
Dry 65% – 70%
Dry 60% – 65%
Dry 55% – 60%
Equal Chances
Wet 55% – 60%
Wet 60% – 65%
Wet 65% – 70%
NOAA
CLIMATE ANALYSIS CENTER
NATIONAL WEATHER SERVICE

National Weather Data for Selected Cities

Weather Data for the Week Ending April 30, 1994

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	84	61	88	55	73	8	.0	-1.1	.0	11.3	102	21.2	101	91	50	0	0	0	0
MOBILE	84	66	86	62	75	4	.3	-.7	.3	9.8	90	17.7	84	97	55	0	0	1	0
MONTGOMERY	86	61	90	56	74	7	.0	-.9	.0	9.0	85	19.1	92	93	47	1	0	0	0
AK ANCHORAGE	53	37	57	33	45	5	T	-.2	T	1.9	162	2.8	96	88	46	0	0	1	0
BARROW	17	11	19	7	14	8	T	-.1	T	.1	38	.2	30	89	81	0	7	0	0
FAIRBANKS	64	34	69	28	49	11	.0	-.1	.0	.2	35	1.0	66	88	25	0	2	0	0
JUNEAU	55	41	63	34	48	6	.7	.0	.3	7.5	124	16.5	115	92	51	0	0	3	0
KODIAK	44	36	48	34	40	1	3.1	2.0	1.3	16.9	192	33.0	154	93	80	0	0	7	2
NOME	34	21	41	13	27	4	.1	-.1	.1	1.5	122	2.8	106	87	68	0	7	1	0
AZ PHOENIX	75	53	83	49	64	-9	.1	.1	.1	1.5	132	2.1	87	66	17	0	0	1	0
PRESCOTT	59	34	69	31	47	-6	.5	.4	.3	1.5	57	2.8	50	85	30	0	2	4	0
TUCSON	78	46	88	42	62	-7	T	.0	T	1.2	116	2.2	86	62	12	0	0	1	0
YUMA	77	55	87	48	66	-8	T	.0	T	.1	34	.4	41	50	16	0	0	0	0
AR FORT SMITH	76	58	87	49	67	2	3.2	2.2	2.1	8.2	103	15.6	125	89	59	0	0	5	2
LITTLE ROCK	80	62	87	49	71	6	1.4	.4	1.1	10.0	106	18.5	116	82	54	0	0	3	1
CA BAKERSFIELD	71	50	79	46	60	-6	.5	.6	.3	2.0	126	3.9	112	65	24	0	0	4	0
EUREKA	58	47	62	44	52	1	1.5	1.1	1.2	5.4	65	17.6	93	87	70	0	0	4	1
FRESNO	68	50	79	46	59	-5	.7	.6	.5	1.9	66	5.0	76	89	28	0	0	4	1
LOS ANGELES	62	51	65	48	57	-5	.3	.2	.2	1.5	54	6.2	81	85	38	0	0	2	0
REDDING	69	45	78	34	57	-3	1.0	.7	.8	3.8	59	13.5	80	87	36	0	0	2	1
SACRAMENTO	70	46	78	45	58	-3	T	-.1	T	.4	11	5.1	49	96	43	0	0	1	0
SAN DIEGO	63	53	64	51	58	-5	.9	.8	.3	4.6	179	8.0	136	87	42	0	0	5	0
SAN FRANCISCO	61	49	71	48	55	-1	.6	.4	.5	1.4	31	9.1	76	90	61	0	0	3	1
CO DENVER	51	33	70	23	42	-9	.8	.3	.5	2.8	92	4.1	101	90	50	0	4	4	0
GRAND JUNCTION	59	38	72	34	48	-9	.2	.0	.1	2.1	102	2.9	91	88	38	0	0	5	0
PUEBLO	57	35	82	27	46	-10	.8	.6	.4	3.0	178	3.7	160	87	43	0	4	5	0
CT BRIDGEPORT	64	46	72	44	55	3	.1	-.8	.1	8.6	115	16.9	123	90	58	0	0	3	0
HARTFORD	72	46	86	44	59	6	.1	-.8	.1	8.2	110	17.4	123	85	37	0	0	3	0
DC WASHINGTON	83	58	90	47	71	10	.1	-.6	.1	10.0	171	18.6	164	89	41	1	0	1	0
FL APALACHICOLA	82	64	84	62	73	3	.0	-.6	.0	6.7	95	15.6	106	--	--	0	0	0	0
DAYTONA BEACH	81	68	82	65	75	3	T	-.6	T	8.5	165	16.8	152	89	61	0	0	0	0
JACKSONVILLE	82	60	84	59	71	0	T	-.6	T	3.7	59	11.1	85	98	53	0	0	0	0
KEY WEST	85	74	88	71	80	1	1.8	1.3	1.3	2.8	80	7.4	101	83	64	0	0	4	1
MIAMI	84	72	88	69	78	2	1.6	.7	.5	4.1	78	13.3	143	86	56	0	0	6	1
ORLANDO	83	67	86	66	75	2	.2	-.2	.2	4.2	85	11.8	115	91	60	0	0	3	0
TALLAHASSEE	87	63	90	60	75	6	T	-.8	T	15.2	153	26.2	129	91	46	1	0	0	0
TAMPA	88	67	90	65	77	4	2.4	2.1	1.3	4.1	98	8.2	89	95	51	1	0	4	2
WEST PALM BEACH	84	73	85	69	78	3	1.0	.1	.4	10.3	174	19.5	173	86	60	0	0	5	0
GA ATLANTA	85	62	88	52	74	9	.8	-.2	.8	9.5	94	18.3	94	93	46	0	0	1	1
AUGUSTA	86	53	88	42	70	4	T	-.7	T	7.5	95	15.7	96	99	45	0	0	0	0
MACON	87	59	90	48	73	6	T	-.8	T	7.7	93	15.9	91	94	40	1	0	0	0
SAVANNAH	84	60	85	54	72	3	.0	-.7	.0	5.9	86	11.4	83	95	44	0	0	0	0
HI HILO	81	69	82	67	75	2	.9	-2.4	.4	35.2	86	61.1	124	91	65	0	0	6	0
HONOLULU	85	72	87	70	78	3	.2	-.1	.2	3.7	98	11.1	117	79	53	0	0	1	0
KAHULUI	84	67	85	63	76	1	T	-.3	T	4.9	106	7.2	62	78	52	0	0	0	0
LIHUE	79	72	80	71	76	1	.1	-.7	.1	4.8	63	15.6	92	82	69	0	0	1	0
ID BOISE	59	41	66	34	50	-2	.6	.3	.2	1.4	56	3.6	72	85	38	0	0	4	0
LEWISTON	59	43	69	39	51	-2	.7	.4	.6	1.8	80	3.4	78	73	36	0	0	3	1
POCATELLO	55	30	64	21	43	-6	.1	-.3	.1	.5	22	2.4	55	92	40	0	4	3	0
IL CHICAGO	67	46	87	34	57	4	1.1	.3	.6	3.3	52	7.9	86	84	46	0	0	3	1
MOLINE	67	46	85	33	57	2	.9	-.1	.6	3.3	47	7.0	72	81	44	0	0	4	1
PEORIA	68	48	86	36	58	2	1.3	.4	.6	4.5	68	7.4	77	86	56	0	0	5	1
QUINCY	67	50	83	37	58	1	2.2	1.3	.8	6.6	96	7.3	75	79	51	0	0	5	2
ROCKFORD	65	45	86	34	56	3	1.9	1.0	1.5	3.8	62	7.9	92	87	49	0	0	4	1
SPRINGFIELD	70	50	86	38	60	2	1.6	.7	.9	9.4	136	11.6	114	79	52	0	0	5	2
IN EVANSVILLE	80	55	86	44	68	6	3.0	2.1	1.7	7.7	84	13.2	85	88	51	0	0	5	2
FORT WAYNE	70	50	86	42	60	7	1.4	.6	.7	7.9	126	11.4	114	85	51	0	0	4	1
INDIANAPOLIS	74	51	85	40	62	6	1.6	.6	.6	6.5	87	10.6	86	86	53	0	0	4	1
SOUTH BEND	66	48	87	37	57	4	1.3	.5	.6	3.7	54	7.7	69	84	52	0	0	3	2
IA DES MOINES	61	44	82	32	53	-2	1.2	.3	.5	2.9	50	5.8	75	88	52	0	1	4	1
SIOUX CITY	58	41	89	30	49	-6	1.5	.8	1.1	2.4	56	4.2	75	83	54	0	3	3	1
WATERLOO	62	45	85	34	54	0	.9	.1	.4	3.7	49	4.9	66	86	50	0	0	4	0
KS CONCORDIA	58	43	85	30	50	-7	.7	.0	.4	1.8	40	2.6	45	89	56	0	1	5	0
DODGE CITY	57	38	83	27	48	-11	.5	.0	.3	2.0	54	2.8	59	91	51	0	4	3	0
GOODLAND	54	33	86	22	44	-10	.6	.2	.3	3.0	120	3.4	104	96	51	0	5	5	0
TOPEKA	62	45	85	32	54	-5	2.6	1.6	1.0	4.9	81	5.8	76	90	55	0	1	5	2
WICHITA	61	45	81	34	53	-8	1.8	1.0	1.0	4.1	75	4.1	55	90	55	0	0	3	1
KY BOWLING GREEN	82	57	85	44	70	9	.6	-.4	.4	12.7	134	24.5	141	93	56	0	0	4	0
LEXINGTON	78	57	83	46	67	9	1.6	.7	.7	13.0	145	20.9	146	89	51	0	0	3	1
LOUISVILLE	81	56	87	43	68	8	3.4	2.5	1.5	9.2	104	16.3	108	90	55	0	0	4	4
LA BATON ROUGE	85	69	87	65	77	5	.4	-.9	.3	12.5	123	22.1	107	99	61	0	0	2	0
LAKE CHARLES	83	70	87	64	77	6	.4	-.6	.3	5.0	75	10.3	70	95	66	0	0	2	0
NEW ORLEANS	86	68	88	63	77	6	.5	-.6	.5	7.7	81	11.5	56	95	50	0	0	1	0
SHREVEPORT	83	66	89	53	75	6	.3	-.9	.1	7.3	92	16.0	98	95	59	0	0	4	0

Based on 1961-90 normals.

Weather Data for the Week Ending April 30, 1994

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
ME CARIBOU	49	31	60	27	40	-3	.4	-.2	.2	5.7	116	10.7	116	88	44	0	5	4	0
PORTLAND	58	39	75	34	48	1	.7	-.3	.7	9.6	124	16.3	111	86	49	0	0	1	1
MD BALTIMORE	81	55	92	45	68	11	.6	-.2	.3	11.2	173	19.9	157	89	46	1	0	3	0
SALISBURY	84	54	88	41	69	11	.4	-.3	.4	11.1	151	19.8	137	94	46	0	0	2	0
MA BOSTON	63	45	78	42	54	2	.3	-.5	.2	9.7	133	17.9	124	86	54	0	0	4	0
CHATHAM	54	43	64	41	49	1	.1	-.8	.0	11.5	152	20.8	136	93	75	0	0	2	0
MI ALPENA	59	38	82	31	48	3	1.5	1.0	.7	3.9	90	6.9	95	89	58	0	2	5	1
DETROIT	70	50	87	39	60	8	2.1	1.4	.7	6.3	115	10.5	117	75	44	0	0	4	2
FLINT	65	44	83	34	54	4	3.8	3.1	1.7	6.7	131	9.3	120	90	53	0	0	5	2
GRAND RAPIDS	64	44	85	34	54	3	1.6	.8	.5	4.7	78	9.1	98	88	50	0	0	4	1
HOUGHTON LAKE	58	38	80	27	48	1	.9	.4	.4	4.3	101	7.6	110	85	55	0	3	6	0
LANSING	65	45	84	33	55	5	2.3	1.6	.7	5.6	108	8.5	109	92	53	0	0	5	3
MARQUETTE	44	28	68	24	36	-7	1.7	1.0	1.2	4.6	84	6.7	72	92	63	0	6	5	1
MUSKEGON	61	43	80	34	52	3	1.2	.5	.3	3.7	69	9.0	98	91	54	0	0	5	0
SAULT ST. MARIE	49	32	64	26	40	-3	.7	.1	.5	3.9	84	7.0	80	92	45	0	4	4	1
MN ALEXANDRIA	47	34	66	29	40	-8	2.5	1.9	1.9	3.9	107	4.8	93	98	58	0	5	4	1
DULUTH	42	30	62	27	36	-8	2.4	1.9	1.3	5.2	125	7.7	124	88	61	0	6	5	2
INT'L FALLS	46	30	55	22	38	-7	.7	.3	.6	2.1	78	2.9	69	87	52	0	5	4	1
MINNEAPOLIS	52	38	69	30	45	-7	2.5	1.8	.8	4.1	94	6.1	98	90	61	0	3	6	2
ROCHESTER	56	41	81	30	48	-2	3.1	2.4	1.3	5.3	117	7.2	119	93	58	0	3	4	3
MS GREENWOOD	87	67	92	60	77	9	.3	-.9	.3	10.1	93	17.0	84	91	52	2	0	1	0
JACKSON	83	66	88	60	75	8	.1	-1.2	.1	10.0	87	24.4	112	93	55	0	0	1	0
MERIDIAN	86	65	90	61	76	9	.1	-1.1	.0	11.7	96	26.4	116	92	48	1	0	2	0
MO CAPE GIRARDEAU	79	56	85	45	67	6	2.2	1.2	.8	10.5	111	18.0	115	93	59	0	0	6	1
COLUMBIA	70	49	86	38	60	2	2.9	2.0	1.2	13.0	192	15.9	159	86	55	0	0	5	3
KANSAS CITY	64	45	83	35	55	-4	4.1	3.3	1.8	7.3	130	9.4	120	88	54	0	0	5	2
SAINT LOUIS	73	54	87	42	64	3	4.1	3.3	3.0	11.6	164	15.2	138	81	48	0	0	5	2
SPRINGFIELD	69	52	84	41	60	1	3.0	2.1	1.2	13.6	175	17.8	156	89	61	0	0	5	3
MT BILLINGS	46	28	66	20	37	-12	.9	.5	.7	2.5	87	3.2	73	94	56	0	6	3	1
GLASGOW	47	28	58	22	38	-11	.3	.1	.3	.8	72	1.8	105	90	41	0	6	2	0
GREAT FALLS	44	27	61	18	36	-12	1.0	.6	.6	2.1	84	3.1	79	94	55	0	6	3	1
HAVRE	48	28	66	23	38	-10	--	--	--	--	--	--	--	92	51	0	6	-	-
HELENA	48	28	66	19	38	-9	.4	.2	.3	1.8	104	2.4	86	89	45	0	6	3	0
KALISPELL	54	32	63	21	43	-4	T	-.3	T	1.5	69	3.5	73	79	29	0	4	1	0
MILES CITY	46	30	62	22	38	-13	1.1	.7	.6	1.8	90	2.9	96	94	59	0	6	3	2
MISSOULA	55	33	66	27	44	-3	1.5	1.2	1.3	3.5	180	4.3	109	87	32	0	4	2	1
NE GRAND ISLAND	57	40	87	30	48	-7	1.2	.6	.6	3.3	76	5.2	94	90	53	0	4	4	2
LINCOLN	58	43	87	32	51	-5	.7	.0	.5	1.9	38	2.7	44	88	52	0	1	3	0
NORFOLK	58	41	91	29	49	-5	1.1	.5	.7	2.0	48	3.6	66	87	59	1	3	3	1
NORTH PLATTE	52	34	85	22	43	-10	.9	.3	.3	1.5	48	2.3	59	92	52	0	5	6	0
OMAHA	61	44	89	32	52	-4	.7	.1	.4	1.2	24	3.4	53	--	--	0	1	2	0
SCOTTSBLUFF	48	32	80	24	40	-10	.7	.2	.3	2.7	101	4.1	111	96	60	0	5	4	0
VALENTINE	48	31	78	15	39	-14	1.2	.6	.7	2.1	61	2.9	64	82	54	0	5	4	1
NV ELY	44	26	53	22	35	-9	.8	.5	.2	2.7	138	4.4	133	94	52	0	7	6	0
LAS VEGAS	68	49	80	46	59	-9	T	-.1	T	.1	21	.7	41	52	20	0	0	0	0
RENO	59	40	68	35	50	-2	T	-.1	T	1.0	94	1.7	54	66	27	0	0	1	0
WINNEMUCCA	57	35	67	29	46	-3	.4	.2	.2	1.8	113	3.1	103	92	40	0	3	5	0
NH CONCORD	64	41	87	38	53	4	.4	.3	.3	7.4	132	11.7	110	83	45	0	0	3	0
NJ ATLANTIC CITY	78	50	89	43	64	11	T	-.8	T	11.3	157	19.0	138	93	41	0	0	1	0
NM ALBUQUERQUE	66	41	76	35	54	-5	T	-.1	T	.7	62	.9	48	58	14	0	0	1	0
CLOVIS	68	41	83	34	54	-6	.1	-.2	.0	1.6	114	1.8	80	78	25	0	0	2	0
ROSWELL	72	47	84	38	60	-5	.1	.0	.1	1.1	135	1.1	68	70	22	0	0	2	0
NY ALBANY	70	47	86	42	59	8	.3	-.4	.2	7.7	131	12.8	121	74	35	0	0	4	0
BINGHAMTON	69	46	83	38	57	8	.6	-.1	.4	7.9	133	13.2	123	80	37	0	0	4	0
BUFFALO	65	44	83	37	55	5	1.1	.4	.3	6.6	119	11.0	104	81	50	0	0	7	0
NEW YORK	72	49	81	46	60	5	.5	-.4	.4	8.6	116	16.2	122	84	44	0	0	2	0
ROCHESTER	67	42	84	34	55	4	1.1	.4	.4	5.8	118	10.1	111	90	48	0	0	6	0
SYRACUSE	69	45	83	36	57	7	1.1	.3	.5	10.4	171	15.7	149	85	53	0	0	5	0
NC ASHEVILLE	80	50	85	37	65	6	.2	-.7	.2	10.8	113	21.3	119	96	44	0	0	2	0
CHARLOTTE	84	58	88	42	71	8	.2	-.5	.2	7.2	102	13.4	92	88	44	0	0	1	0
GREENSBORO	83	55	87	43	69	8	.5	-.2	.5	6.5	99	12.6	97	88	42	0	0	2	1
HATTERAS	81	61	86	44	71	9	T	-.8	T	8.4	107	18.8	109	91	47	0	0	1	0
NEW BERN	85	58	89	43	72	7	.0	-.8	.0	6.3	89	14.1	90	92	40	0	0	0	0
RALEIGH	85	58	88	44	71	9	T	-.6	T	6.8	106	13.3	98	88	40	0	0	1	0
WILMINGTON	83	57	86	46	70	6	.0	-.7	.0	9.1	121	19.4	117	99	44	0	0	0	0
ND BISMARCK	44	27	58	18	36	-12	.8	.4	.4	1.7	71	2.8	83	95	56	0	6	3	0
FARGO	48	32	61	26	40	-9	2.4	1.9	1.5	3.5	123	4.9	121	91	55	0	5	5	1
GRAND FORKS	47	30	57	21	38	-9	1.0	.7	1.0	1.5	66	2.8	79	88	46	0	5	2	1
WILLISTON	47	27	55	22	37	-11	.4	.1	.3	1.6	81	3.5	118	90	42	0	6	2	0
OH AKRON-CANTON	73	47	83	40	60	7	.4	-.4	.4	9.3	144	14.5	133	76	48	0	0	1	0
CINCINNATI	76	53	83	43	65	8	3.6	2.7	1.3	8.7	109	13.6	102	89	52	0	0	4	3
CLEVELAND	72	47	84	39	59	8	.5	-.3	.3	5.0	83	8.4	82	79	44	0	0	3	0
COLUMBUS	77	51	86	39	64	11	.8	-.1	.4	5.6	84	11.0	101	85	49	0	0	4	0
DAYTON	74	52	84	44	63	8	2.2	1.4	.9	8.2	119	13.2	118	79	51	0	0	4	2

Based on 1961-90 normals.

Weather Data for the Week Ending April 30, 1994

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTRME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
TOLEDO	69	50	85	38	59	7	1.5	.8	.6	6.9	123	11.6	128	83	47	0	0	4	1
YOUNGSTOWN	74	48	84	37	61	9	.7	.0	.5	9.9	161	14.2	137	77	43	0	0	2	0
OK OKLAHOMA CITY	67	48	82	39	57	-6	2.3	1.5	1.8	6.6	120	9.3	114	97	57	0	0	5	1
TULSA	67	53	85	41	60	-5	3.0	2.0	2.0	9.9	138	12.8	120	91	55	0	0	5	2
OR ASTORIA	57	46	59	43	51	2	.2	-.7	.1	10.8	93	29.0	99	93	63	0	0	5	0
BURNS	54	32	63	25	43	-2	.1	.0	.1	.7	41	1.5	43	83	35	0	3	2	0
MEDFORD	64	42	73	36	53	-1	.2	.0	.1	1.9	65	4.2	55	90	40	0	0	4	0
PENDLETON	64	44	71	38	54	1	.1	-.2	.1	1.0	46	4.3	88	74	29	0	0	2	0
PORTLAND	65	48	69	45	56	3	.2	-.4	.1	3.7	63	12.2	81	87	51	0	0	3	0
SALEM	64	45	70	39	55	4	.2	-.2	.1	4.7	72	13.2	78	87	48	0	0	3	0
PA ALLENTOWN	77	51	89	39	64	10	.3	-.5	.2	8.9	131	17.8	138	79	39	0	0	3	0
ERIE	67	48	83	39	58	7	1.3	.6	.5	7.9	126	11.8	110	87	48	0	0	6	1
HARRISBURG	78	54	87	42	66	11	1.4	.5	.9	9.3	143	18.1	148	84	43	0	0	3	1
PHILADELPHIA	81	56	90	49	68	12	.1	-.8	.1	9.3	127	16.9	122	85	39	1	0	2	0
PITTSBURGH	78	51	85	39	65	11	.6	-.1	.5	8.7	133	14.8	128	72	39	0	0	2	0
SCRANTON	75	51	85	44	63	11	1.2	.4	.9	8.9	162	13.2	135	79	35	0	0	3	1
RI PROVIDENCE	66	45	81	43	56	5	.2	-.7	.1	9.3	114	16.9	108	90	42	0	0	4	0
SC CHARLESTON	84	59	85	54	71	4	.0	-.6	.0	4.7	67	13.4	98	94	41	0	0	0	0
COLUMBIA	88	55	91	40	72	6	T	-.7	T	4.8	59	13.0	78	88	33	2	0	0	0
FLORENCE	85	57	87	44	71	5	.0	-.6	.0	5.8	85	12.8	93	97	42	0	0	0	0
GREENVILLE	82	55	87	39	69	6	.4	-.4	.4	7.1	76	14.8	83	93	44	0	0	1	0
SD ABERDEEN	49	35	64	28	42	-8	1.6	1.1	.6	2.7	92	4.0	96	91	60	0	4	5	2
HURON	50	35	74	27	43	-9	2.0	1.5	1.1	3.0	81	4.7	96	94	60	0	5	3	2
RAPID CITY	44	29	72	17	37	-12	.8	.3	.4	1.6	53	2.7	70	90	64	0	6	5	0
SIOUX FALLS	56	37	88	25	46	-6	1.9	1.3	1.1	3.5	85	5.2	97	92	66	0	3	3	1
TN CHATTANOOGA	85	59	90	48	72	10	1.2	.2	1.2	16.8	163	30.6	153	98	42	1	0	1	1
KNOXVILLE	82	57	85	48	69	9	.7	-.1	.4	19.7	224	35.6	209	92	49	0	0	2	0
MEMPHIS	83	64	89	56	74	7	1.5	.2	.6	10.9	100	20.8	110	88	56	0	0	3	2
NASHVILLE	82	58	86	50	70	8	.8	-.3	.4	13.3	144	23.8	143	86	53	0	0	5	0
TX ABILENE	75	49	90	39	62	-6	1.4	.8	1.2	3.5	108	5.4	99	93	44	1	0	3	1
AMARILLO	62	38	83	30	50	-10	.7	.4	.5	2.4	122	3.5	114	87	38	0	3	3	0
AUSTIN	84	65	92	51	74	2	1.3	.5	1.1	3.4	76	6.9	83	91	58	1	0	3	1
BEAUMONT	84	71	87	61	77	6	.9	-.1	.9	8.1	120	16.3	109	95	68	0	0	1	1
BROWNSVILLE	87	72	89	62	79	2	T	-.5	T	2.6	122	5.0	106	93	59	0	0	1	0
CORPUS CHRISTI	84	70	86	57	77	2	2.5	2.0	2.5	7.7	288	9.7	153	93	63	0	0	1	1
DEL RIO	87	65	95	51	76	3	1.3	.6	1.2	4.2	124	7.0	118	81	47	2	0	3	1
EL PASO	79	51	83	43	65	-2	T	-.1	T	1.0	208	1.3	98	49	13	0	0	1	0
FORT WORTH	75	57	87	46	66	-1	2.5	1.5	1.8	5.3	79	8.7	80	96	66	0	0	3	2
GALVESTON	81	73	84	64	77	5	.2	-.5	.2	3.0	64	5.5	54	98	77	0	0	1	0
HOUSTON	84	70	87	56	77	6	1.0	.0	.7	4.5	68	9.4	67	92	65	0	0	2	1
LUBBOCK	70	44	86	35	57	-8	1.2	.9	.7	3.1	165	3.6	124	93	34	0	0	4	1
MIDLAND	75	47	88	38	61	-7	.5	.2	.4	T	0	1.1	49	91	26	0	0	3	0
SAN ANGELO	81	51	96	41	66	-4	1.0	.5	.8	1.0	39	3.0	68	92	38	2	0	2	1
SAN ANTONIO	84	66	92	51	75	3	1.8	1.1	1.1	7.3	181	9.5	126	89	55	1	0	3	1
VICTORIA	83	69	86	54	76	4	.8	.0	.8	6.8	138	9.1	82	93	61	0	0	1	1
WACO	79	61	88	47	70	0	1.2	.3	1.0	5.0	91	9.7	105	97	66	0	0	2	1
WICHITA FALLS	74	49	89	41	62	-5	1.8	1.0	1.5	3.1	57	4.9	57	92	55	0	0	2	1
UT CEDAR CITY	53	32	64	28	43	-8	.3	.1	.2	2.2	88	3.5	87	92	36	0	5	5	0
SALT LAKE CITY	57	39	66	37	48	-5	1.2	.7	.5	4.2	105	6.4	100	85	35	0	0	5	1
VT BURLINGTON	62	41	81	34	51	2	.6	-.1	.3	6.3	126	9.7	115	80	45	0	0	5	0
VA NORFOLK	87	60	93	48	74	13	.0	-.7	.0	10.9	161	18.6	133	75	36	2	0	0	0
RICHMOND	88	55	93	43	72	11	1.5	.8	1.5	10.6	161	18.1	139	82	25	2	0	2	1
ROANOKE	84	55	88	42	70	11	4.3	3.5	3.8	11.3	167	21.2	171	83	42	0	0	4	1
WA QUILLAYUTE	57	43	64	38	50	2	.4	-1.1	.3	17.0	90	44.8	98	94	55	0	0	3	0
SEATTLE-TACOMA	61	46	64	42	53	2	.2	-.3	.1	5.5	93	12.5	82	88	47	0	0	3	0
SPOKANE	58	39	64	34	48	0	.4	.1	.3	1.6	61	3.9	63	81	30	0	0	4	0
YAKIMA	66	41	71	32	54	2	T	-.1	T	.9	80	2.4	75	75	33	0	1	2	0
WV BECKLEY	78	55	82	43	66	12	.7	-.1	.3	10.3	151	20.2	159	78	41	0	0	3	0
CHARLESTON	83	55	87	40	69	11	.5	-.3	.2	11.5	166	23.5	182	88	43	0	0	4	0
HUNTINGTON	82	56	87	39	69	13	.6	-.3	.3	12.0	167	21.8	165	84	44	0	0	5	0
PARKERSBURG	80	55	84	38	67	10	.2	-.6	.1	9.9	134	21.2	158	87	41	0	0	3	0
WI GREEN BAY	56	37	81	32	47	-2	4.0	3.4	1.9	7.1	158	9.6	145	94	58	0	2	7	2
LACROSSE	60	44	87	34	52	-1	--	--	--	--	--	--	--	94	47	0	0	-	-
MADISON	62	44	83	33	53	2	1.3	.5	.9	3.0	57	7.2	96	86	52	0	0	5	1
MILWAUKEE	63	40	85	32	51	3	1.4	.6	.6	3.6	58	9.3	101	92	50	0	1	5	1
WAUSAU	54	37	77	26	46	-3	2.7	2.0	1.8	4.3	90	5.7	88	92	50	0	4	6	1
WY CASPER	48	28	75	20	38	-8	.5	.1	.5	1.5	59	2.9	79	87	50	0	6	4	0
CHEYENNE	44	27	73	18	35	-11	.8	.4	.6	2.0	83	3.5	111	90	59	0	6	5	1
LANDER	47	28	71	19	37	-10	1.0	.4	.5	3.0	92	4.3	100	87	46	0	6	3	1
SHERIDAN	46	25	69	18	35	-12	.9	.4	.5	2.5	93	5.5	134	92	57	0	6	3	1

Based on 1961-90 normals.

CUMULATIVE GROWING DEGREE DAYS (CORN*)
March 1 - April 30, 1994

STATES AND STATIONS	TOTAL	DEP. FROM NORMAL
AL ANNISTON	824	+ 138
BIRMINGHAM	807	+ 112
MOBILE	980	+ 66
MONTGOMERY	932	+ 165
MUSCLE SHOALS	727	+ 124
OZARK	947	+ 76
TUSCALOOSA	852	+ 100
AZ DOUGLAS	808	+ 105
FLAGSTAFF	251	+ 87
PHOENIX	1094	+ 182
TUCSON	980	+ 170
YUMA	1278	+ 251
PRESCOTT	470	+ 108
AR EL DORADO	839	+ 108
FAYETTEVILLE	624	+ 120
FORT SMITH	755	+ 144
JONESBORO	664	+ 84
LITTLE ROCK	764	+ 85
TEXARKANA	844	+ 101
CA BAKERSFIELD	820	+ 131
BLUE CANYON	127	+ 32
DAGGETT	946	+ 185
EUREKA	272	+ 150
FAIRFIELD	705	+ 165
FRESNO	779	+ 175
MARYSVILLE	723	+ 134
MT SHASTA	303	+ 113
PASO ROBLES	745	+ 191
RED BLUFF	663	+ 123
RIVERSIDE	674	- 6
SANTA ANA	863	+ 201
SAN DIEGO	672	+ 68
SACRAMENTO	669	+ 139
THERMAL	1140	+ 116
CO ALAMOSA	201	+ 38
DENVER	406	+ 133
EAGLE	183	+ 23
GRAND JUNCTION	435	+ 83
LA JUNTA	517	+ 96
DE DOVER	362	+ 9
WILMINGTON	387	+ 124
FL DAYTONA BEACH	1190	+ 144
FORT MYERS	1437	+ 180
GAINESVILLE	1069	+ 1
JACKSONVILLE	1051	+ 111
FORT LAUDERDALE	1579	+ 221
MIAMI	1589	+ 174
MILTON	965	+ 53
PENSACOLA	997	+ 96
ST PETERSBURG	1335	+ 91
TALLAHASSEE	1064	+ 139
TAMPA	1325	+ 173
VERO BEACH	1363	+ 186
W. PALM BEACH	1467	+ 98
GA ATHENS	799	+ 177
AUGUSTA	897	+ 170
BRUNSWICK	1013	+ 155
COLUMBUS/METRO	935	+ 161
MACON	953	+ 159
SAVANNAH	1034	+ 198
ID BOISE	410	+ 189
BURLEY	372	+ 187
IDAHO FALLS	276	+ 157
POCATELLO	316	+ 178
IL BELLEVILLE	439	+ 33
CHICAGO/MIDWAY	285	+ 86
DECATUR	312	- 19
PEORIA	329	+ 85
ROCKFORD	258	+ 91
SPRINGFIELD	357	+ 53
QUINCY	324	+ 41
IN INDIANAPOLIS	324	+ 33
SOUTH BEND	261	+ 72
TERRE HAUTE	346	+ 46
IA DES MOINES	325	+ 48
MASON CITY	232	+ 68
OTTUMWA	315	+ 82
SIOUX CITY	323	---
WATERLOO	262	---
KS CHANUTE	491	+ 53
DODGE CITY	507	+ 104
GARDEN CITY	508	+ 97
GOODLAND	418	+ 110
MEDICINE LODGE	598	+ 74
RUSSELL	494	+ 133
SALINA	509	+ 131
TOPEKA/BILLARD	474	+ 94
WICHITA	526	+ 50
KY LEXINGTON	434	+ 54
BOWLING GREEN	563	+ 98
PADUCAH	562	+ 63
LA LAFAYETTE	1020	+ 63
LAKE CHARLES	1027	+ 127
MONROE	935	+ 148
NEW ORLEANS	1024	+ 61
SHREVEPORT	910	+ 56
ME AUGUSTA	65	+ 1
CARIBOU	27	+ 6
HOULTON	42	+ 5
PORTLAND	86	+ 25
MD SALISBURY	515	+ 182
MA WORCESTER	135	+ 29
MI GRAND RAPIDS	194	---
JACKSON	221	+ 56
LANSING	209	+ 30
MUSKEGON	129	+ 20
PELLSTON	75	+ 7
SAULT STE. MARIE	25	- 15
TRAVERSE CITY	116	+ 23
MN DULUTH	70	+ 27
INT'L FALLS	84	+ 24
MINNEAPOLIS	158	---
ROCHESTER	163	---
ALEXANDRIA	106	+ 18
MS BILOXI	980	+ 64
COLUMBUS	936	+ 224
JACKSON	842	+ 76
MERIDIAN	941	+ 154
GREENWOOD	873	+ 153
MO COLUMBIA	428	+ 79
JOPLIN	568	+ 94
SPRINGFIELD	533	+ 91
VICHY	457	+ 57
MT HELENA	254	+ 130
KALISPELL	175	+ 63
MILES CITY	290	+ 125
NE GRAND ISLAND	378	+ 116
NORFOLK	365	+ 146
NORTH PLATTE	392	+ 135
VALENTINE	336	+ 104
SCOTTSBLUFF	381	+ 137
SIDNEY	345	+ 127
NV ELKO	297	+ 116
ELY	252	+ 100
LAS VEGAS	945	+ 232
RENO	453	+ 143
WINNEMUCCA	422	+ 156
NH CONCORD	158	+ 33
NJ NEWARK	339	+ 121
NM ALBUQUERQUE	585	+ 60
CARLSBAD	907	+ 153
CLOVIS	596	+ 58
GALLUP	396	+ 84
TRUTH OR CONSEQ.	671	+ 68
NY ALBANY	175	+ 29
ELMIRA	202	+ 44
GLENS FALLS	146	+ 35
POUGHKEEPSIE	228	+ 51
ROCHESTER	174	+ 39
SYRACUSE	166	+ 35
UTICA	123	+ 18
WATERTOWN	138	+ 43
NC ASHEVILLE	530	+ 72
FAYETTEVILLE	795	+ 171
GREENSBORO	615	+ 116
HICKORY	632	+ 125
RALEIGH	704	+ 152
WILMINGTON	823	+ 201
NEW BERN	765	+ 132
ND BISMARCK	175	+ 58
DICKINSON	171	+ 65
JAMESTOWN	112	+ 13
MINOT	136	+ 47
GRAND FORKS	112	+ 32
OH AKRON-CANTON	237	+ 32
COLUMBUS	329	+ 50
DAYTON	309	+ 40
FINDLAY	237	+ 35
YOUNGSTOWN	234	+ 52
ZANESVILLE	316	+ 38
OK ALTUS	722	+ 5
GAGE	627	+ 105
HOBART	659	+ 76
MCALESTER	739	+ 107
PONCA CITY	647	+ 141
TULSA	661	+ 82
OR BAKER	312	+ 155
EUGENE	362	+ 131
NORTH BEND	241	+ 101
PENDLETON	392	+ 160
REDMOND	289	+ 93
PORTLAND	392	+ 167
SALEM	406	+ 181
SEXTON SUMMIT	137	+ 48
PA ALLENTOWN	294	+ 83
PHILADELPHIA	402	+ 141
WILLIAMSPORT	289	+ 89
SC BEAUFORT	993	+ 180
CHARLESTON	958	+ 198
COLUMBIA	942	+ 205
FLORENCE	911	+ 198
SUMTER/SHAW AFB	949	+ 87
SD ABERDEEN	187	+ 66
HURON	226	+ 62
PIERRE	280	+ 97
RAPID CITY	324	+ 138
SIOUX FALLS	240	+ 69
WATERTOWN	131	+ 21
TN BRISTOL	513	+ 80
CHATTANOOGA	692	+ 137
CROSSVILLE	550	+ 180
MEMPHIS	799	+ 177
NASHVILLE	632	+ 95
TX ABILENE	847	+ 63
AMARILLO	565	+ 58
AUSTIN	1042	+ 94
BROWNSVILLE	1311	+ 4
COLLEGE STATION	1004	+ 86
DALHART	554	+ 80
DEL RIO	1158	+ 102
DALLAS/FT WORTH	885	+ 81
GALVESTON	1078	+ 143
HOUSTON/INTCNTL	1082	+ 139
KINGSVILLE/NAS	1255	+ 17
LAREDO	1328	+ 51
LUBBOCK	740	+ 107
MCALLEN	1405	+ 113
MIDLAND	830	- 3
PALACIOS	1049	+ 38
SAN ANTONIO	1105	+ 101
VICTORIA	1090	+ 83
WACO	907	+ 45
WICHITA FALLS	755	+ 39
WINK	888	+ 67
UT CEDAR CITY	362	+ 111
VT BARRE-MONTPELIER	87	+ 17
BURLINGTON	110	+ 27
VA CHARLOTTESVILLE	580	+ 154
HAMPTON/LANGLEY	632	+ 219
LYNCHBURG	534	+ 122
NORFOLK	686	+ 245
RICHMOND	625	+ 142
WA BELLINGHAM	236	+ 125
HOQUIAM	323	+ 106
SEATTLE-TACOMA	283	+ 145
SPOKANE	237	+ 118
TACOMA	290	+ 109
WALLA WALLA	449	+ 192
WENATCHEE	412	+ 130
YAKIMA	434	+ 150
WV HUNTINGTON	501	+ 106
MARTINSBURG	408	+ 91
MORGANTOWN	393	+ 71
WI EAU CLAIRE	150	+ 23
GREEN BAY	142	+ 45
LACROSSE	199	+ 48
MADISON	227	+ 75
WAUSAU	127	+ 31
WY CASPER	327	+ 192
LANDER	271	+ 146
SHERIDAN	286	+ 134
WORLAND	355	+ 164

Based on 1951-80 normals.

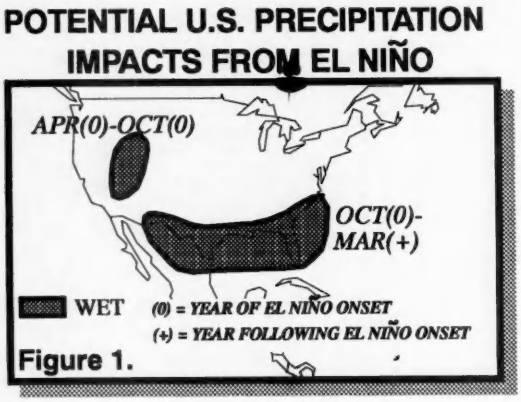
* Growing degree days for corn are computed to a 50°F base with the daily maximum temperature limited to 86°F or lower, and the daily minimum to 50°F or higher.

A Tale of Three Niños: 1911-13, 1939-42, 1991-93

This is the second of an irregular series of articles that examines relationships between the Southern Oscillation Index and weather conditions in all, or part of, the United States.

[SOI Background: The Southern Oscillation Index (SOI) is a measure of the anomalous pressure difference between Darwin, Australia, and Tahiti, an island in the central equatorial Pacific Ocean. The SOI has become an important historical record for El Niño researchers because of the reliability of weather data at those two stations dating back to the late 19th century.]

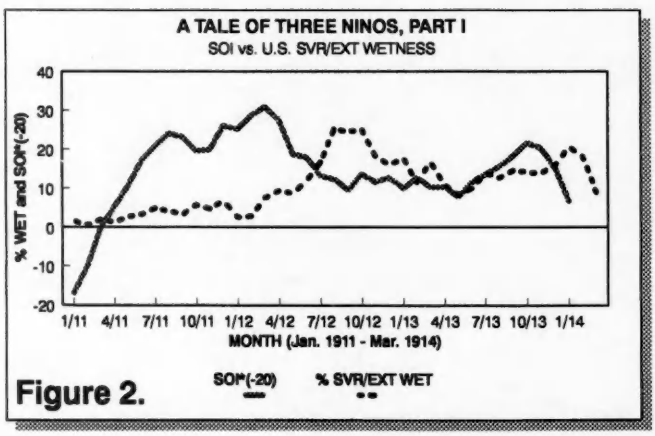
In late 1993, one of the century's three longest-lived warm phases of the Southern Oscillation (popularly termed El Niño) faded out. A typical feature of warm phase events in the United States is an enhanced sub-tropical jet stream, and the 1991-93 episode was no exception. A study by Halpert and Ropelewski in the *Monthly Weather Review* (1987) showed that an El Niño usually delivers autumn-to-spring wetness to the southern-tier States, preceded by spring-to-autumn wetness in parts of the interior West (fig. 1). However, fluctuations in the polar front jet stream can have profound effects on the actual timing and location of heavy precipitation for any given El Niño.



The moisture contribution of recent warm phase events appears to have been significant. For instance, California's heavy precipitation winters of 1982-83 and 1992-93 had strong ties to sub-tropical moisture. However, in other El Niño winters, such as 1991-92, sub-tropical energy remained too far south, across southern California and northwestern Mexico, to benefit the State's reservoirs. More recently, the long-duration 1991-93 warm phase event, along with an anomalously strong and unyielding summertime polar front jet, contributed to the record summer flooding in the Midwest. The wet spell can be traced to a weather pattern that originated in July 1992, and which underwent amplification in November 1992, and again in late March and June 1993. An in-house study by Scofield of the Satellite Data and Information Service (NESDIS) showed that for 1990-93, 80 percent of 5-inch, or greater, May-to-October rainfall events in the United States involved a sub-tropical plume, or connection. In June to August 1993, of 35 total 5-inch, or greater, rainfall events in the nine-State flood area, more than 80 percent had a sub-tropical link.

An inspection of historical SOI data reveals only two other warm phase events this century that spanned 2 years or more. Each produced wetness over a significant part of the contiguous United States, which is detailed in the following paragraphs. But efforts to predict post-El Niño dry and wet spells have often failed, partly due to the capricious nature of the Southern Oscillation. One of the most misused applications of the SOI involves the use of an El Niño's demise to forecast U.S. drought. Indeed, after the 1939-42 El Niño, the Nation largely escaped long-term dryness (and wetness) until the early 1950's, when an extended drought took hold. A final caveat involves the delineation between long-term and short-term weather events. While this article deals specifically with long-term wetness and dryness (as shown by the Palmer Index), short-term events, such as the hot, dry spells that withered Corn Belt crops in 1947 and 1983, are better depicted by the Crop Moisture Index.

In 1911, a rather dry regime covered the United States. In June, nearly 30 percent of the Nation was mired in severe to extreme drought (Palmer index, retroactively calculated, less than -3.0). In the equatorial Pacific Ocean, an El Niño sprang to life in May 1911 (as determined by the SOI 5-month running mean). Its effects on mitigating drought in the United States were not felt until later in 1911. A minor wet spell culminated



in October 1912, with 25.0 percent of the Nation in a severe to extreme wet spell, and severe to extreme dryness virtually erased. The long-lived El Niño lingered, albeit weakly, through 1913 (fig. 2). Although SOI data are missing for most of 1914 and 1915, there is an indication that El Niño conditions may have resurfaced during part of this time. If that is true, it would help to account for the extreme wetness that developed during the spring of 1915. In fact, the severe to extreme wet spell peaked in January 1916 as the second wettest on record for the Nation (45.8 percent, behind May 1983's value of 47.4 percent). Thereafter, a La Niña (cold phase of the Southern Oscillation) developed in the spring of 1916 and lasted until the spring of 1918. Warm phase conditions returned in the summer of 1918 and continued until the winter of 1919-20. In terms of U.S. moisture conditions, a minor dry spell occurred during much of 1917 and 1918, followed by a minor wet spell in 1919 and 1920.

In 1939, the Nation was still attempting to emerge from the shadow of the Dust Bowl years. Both 1934 and 1936 were disastrous crop years, and drought in 1939 left 41.4 percent of the Nation in a severe to extreme dry spell by December. However, developments in the equatorial Pacific promised to alleviate the specter of the 1930's drought. By late summer 1939, a warm-phase episode, the first since at least 1932, was underway. This long-lived El Niño continued unabated until early-spring 1942. The wet spell peaked in October 1941 with 38.3 percent of the Nation severely to extremely wet (fig. 3). General wetness lingered into early 1943. In subsequent years, largely neutral (near-normal) SOI values persisted, broken only by a marginal La Niña in late 1942 and early 1943, and a marginal El Niño in 1946. U.S. moisture conditions tended to shy from extremes during the rest of the 1940's, except for brief turns toward wetness in 1945 and 1947.

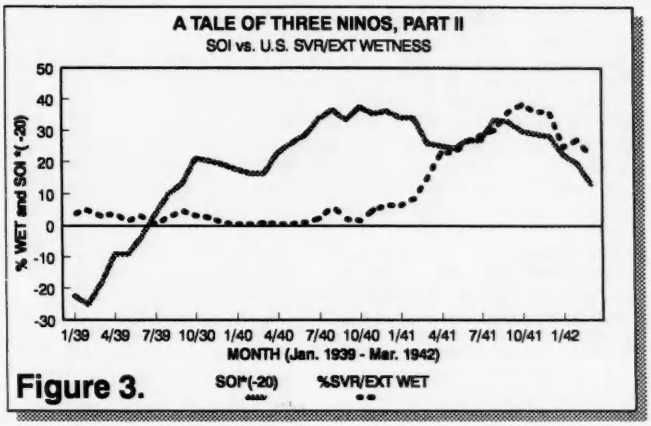


Figure 3.

More than 50 years elapsed before another warm phase event spanned 2 years. A false start tricked meteorologists into believing that an El Niño was underway during the winter of 1989-90, but full-fledged warm phase conditions did not appear for more than a year, until the spring of 1991. At that time, the Nation was still feeling the effects of a long-running drought that had covered 20 percent or more of the Nation during most months since the spring of 1988. The warm phase lingered into 1992, appeared to fade during the late summer, but made a pronounced return during the autumn. As the El Niño persisted into and through most of 1993, the Nation grew continuously wetter (fig. 4). Preliminary data indicate that about 43 percent of the Nation was under a severe to extreme wet spell in August 1993, the fourth wettest spell on record, despite worsening drought in the Southeastern States. The anchor-like nature of the summer's circulation pattern, which forced storms to release their energy repeatedly across the upper and middle Mississippi Valley, resulted in the Nation's worst summer flooding on record.

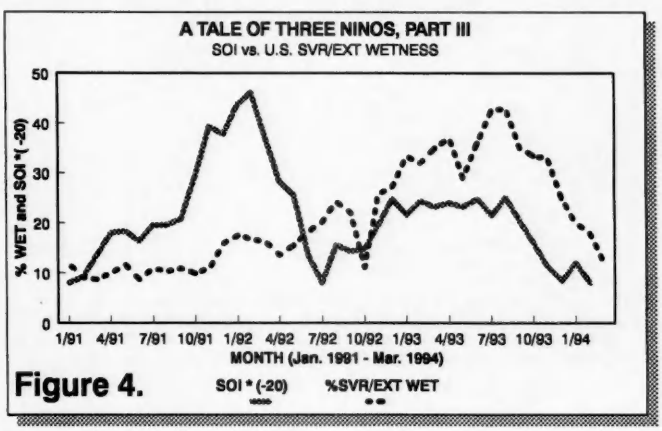


Figure 4.

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National Agricultural Summary

April 25 - May 1, 1994

HIGHLIGHTS: Field crop progress was slowed by rain or snow during the week, but producers continued planting at a strong pace. In the Midwest, producers planted wherever possible to avoid a repeat of last year's difficulties. The snow and rain limited the number of days suitable for fieldwork to three or less across the upper Great Plains and Mississippi Valley. The middle Mississippi and Ohio Valleys continued to report surplus soil moisture, but despite the wet field conditions, producers planted at a brisk pace. Heavy rains and saturated soils caused reports of flooding in parts of Kansas and Kentucky. The northern Pacific Coast remained dry, with soil moisture 91 percent (%) and 47% short for Oregon and Washington, respectively. Crop development was slowed and behind average for the week because of the cool weather. Corn and cotton planting progress was 42% for the Nation. The percentage planted for all row crops was ahead of schedule.

SMALL GRAINS: The **winter wheat** crop was mostly good to fair with 21% of the acreage headed, 2 percentage points behind the 5-year average. Heading lagged behind the average in the central Great Plains and Mississippi Valley. Southwestern Kansas respondents reported moderate Russian aphid infestation. Wheat jointing was 90%, 20 points ahead of normal. Wheat fields in Texas received needed moisture, but some fields may be unable to recover. Low temperatures in the Texas plains possibly damaged some fields, while winter wheat condition for the State was mostly fair. Producers treated wheat fields for armyworms in Arkansas where wheat was 74% headed. In Washington's Columbia Basin, some wheat streak mosaic was reported.

Spring wheat seeding was 34% complete, 15 points behind the average, with Idaho and Montana ahead of schedule. Snow in the Dakotas slowed planting progress. South Dakota spring wheat was 32% emerged, ahead of last year's 2%, but 7 points behind the average.

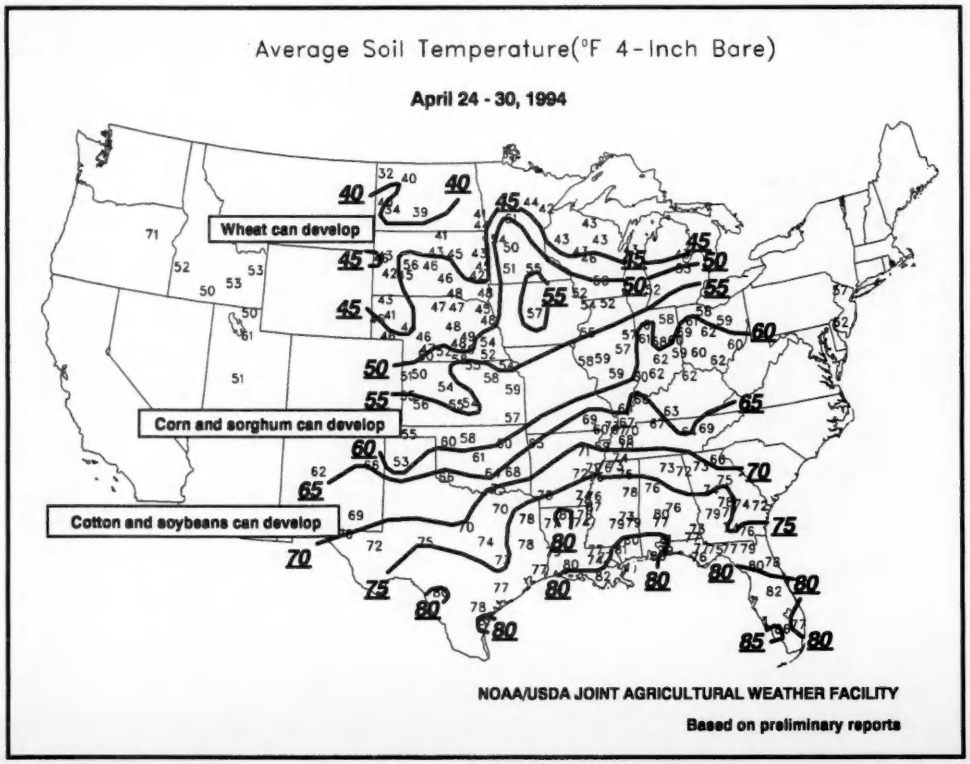
FIELD CROPS: **Corn** planted was 42% complete for the Nation, 19 points ahead of the average. Every State was ahead of the average for the week, with producers planting over one-third of their crop in Indiana, Minnesota, and Nebraska. Close to half of the crop was planted in Illinois, Missouri, and Ohio. Flooding in southeast Kansas hit some previously flooded fields again, causing them to be replanted a second time.

Cotton planting was 42% complete for the 14 major producing States, 12 points ahead of the average. Favorable weather in the Delta region promoted planting activity and progress. Cotton planted was 80% complete for Louisiana and Mississippi. Both States increased planted acres over 50 points from last week. Cotton was 44% emerged in Louisiana, 22 points ahead of normal, while Mississippi had 46% of its cotton emerged, 31 points ahead of the average. Arkansas reported a 30-percentage point increase from last week. Heavy rain in California's Fresno County washed out some emerged cotton fields.

Sorghum planting was 26%, 3 points ahead of the average. Planting was over 50% completed in Arkansas, Mississippi, and Texas. Sorghum condition for Texas was 88% normal, despite reports of outbreaks of cinch bugs and wind damage to some fields.

Rice seeding was 63% complete, 20 points ahead of normal. Mississippi rice was 69% emerged, compared with 18% for the average, and was rated mostly good. Arkansas rice fields were flushed and levee construction was progressing. California rice planting was delayed by wet conditions.

Soybean planting was 4% complete, 2 points ahead of normal. Planting lagged behind normal in the central Mississippi Valley where storms and wet fields delayed some planting. Mississippi had one-third of their soybeans planted, and 14% of the crop emerged.


Average Soil Temperature(°F 4-Inch Bare)
April 24 - 30, 1994
Wheat can develop
Corn and sorghum can develop
Cotton and soybeans can develop
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports

Crop Progress

for the Week Ending May 1, 1994

SPRING WHEAT PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
ID	88	77	50	76
MN	36	26	45	56
MT	50	31	21	46
ND	17	9	34	39
SD	72	58	58	80
5 Sts	34	23	37	49

These 5 States produced 97% of the 1993 spring wheat crop.

SOYBEANS PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
AL	4	NA	9	7
AR	5	NA	3	2
GA	4	NA	2	2
IL	0	NA	0	3
IN	8	NA	0	4
IA	7	NA	0	0
KS	0	NA	0	0
KY	2	NA	1	2
LA	5	NA	1	2
MI	0	NA	0	0
MN	1	NA	1	1
MS	24	NA	1	3
MO	0	NA	0	1
NE	0	NA	0	0
NC	15	NA	8	15
OH	9	NA	0	0
SC	2	NA	1	0
SD	0	NA	0	0
TN	0	NA	0	1
19 Sts	4	NA	1	2

These 19 States produced 95% of the 1993 soybean crop.

WINTER WHEAT HEADED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
AR	74	33	28	61
CA	96	95	96	92
CO	0	0	0	0
GA	98	96	86	95
ID	0	0	0	0
IL	0	0	0	2
IN	0	0	0	0
KS	5	0	0	15
MI	0	0	0	0
MO	3	0	0	12
MT	0	0	0	0
NE	0	0	0	0
NC	51	41	28	61
OH	0	0	0	0
OK	62	20	17	55
OR	0	0	0	0
SD	0	0	0	0
TX	45	30	45	50
WA	0	0	0	0
19 Sts	21	10	11	23

These 19 States produced 92% of the 1993 winter wheat crop.

COTTON PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
AL	46	30	38	57
AZ	87	77	76	79
AR	41	11	12	14
CA	90	75	85	89
GA	47	20	35	23
LA	80	25	28	43
MS	80	30	10	32
MO	11	3	6	13
NM	61	35	61	75
NC	21	13	11	21
OK	3	1	2	3
SC	49	16	23	23
TN	10	3	6	15
TX	23	20	22	19
14 Sts	42	25	27	30

These 14 States produced 99% of the 1993 cotton crop.

RICE PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
AR	65	42	12	37
CA	15	2	3	10
LA	72	57	61	67
MS	98	60	13	40
TX	77	67	62	75
5 Sts	63	43	25	43

These 5 States produced 96% of the 1993 rice crop.

GRAIN SORGHUM PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
AR	57	29	21	36
CO	0	0	0	0
IL	0	0	0	1
KS	0	0	0	1
LA	43	34	21	48
MS	68	47	29	40
MO	7	3	2	8
NE	0	0	0	0
NM	0	0	9	9
OK	7	3	3	5
SD	0	0	0	0
TX	68	65	62	61
12 Sts	26	23	22	23

These 12 States produced 98% of the 1993 grain sorghum crop.

CORN PLANTED

State	Week Ending May 1, 1994	Week Ending Apr 24, 1994	Week Ending May 2, 1993	1989-1993 Avg.
	Percent			
CO	28	11	28	27
GA	98	96	96	95
IL	46	7	1	30
IN	35	8	3	16
IA	65	22	3	18
KS	50	30	25	45
KY	40	15	25	35
MI	10	0	1	5
MN	31	20	3	13
MO	49	22	9	37
NE	31	14	9	26
NC	75	69	58	60
OH	47	10	10	18
PA	10	0	3	7
SD	11	2	3	5
TX	76	67	83	85
WI	16	1	1	4
17 Sts	42	16	9	23

These 17 States produced 91% of the 1993 corn crop.

Crop Condition

for the Week Ending May 1, 1994

WINTER WHEAT

State	VP	P	F	G	EX
	Percent				
AR	0	0	37	59	4
CA	0	0	5	70	25
CO	3	6	25	50	16
GA	0	0	16	74	10
ID	0	1	17	69	13
IL	0	14	42	42	2
IN	0	3	32	57	8
KS	0	2	48	50	0
MI	3	7	25	45	20
MO	0	11	56	31	2
MT	1	7	18	54	20
NE	0	0	37	54	9
NC	0	0	25	72	3
OH	0	4	22	56	18
OK	0	16	46	38	0
OR	1	13	31	42	13
SD	3	4	23	63	7
TX	5	38	43	13	1
WA	0	10	26	51	13
19 Sts	1	11	38	45	5
Prev Wk	1	8	37	48	6
Prev Yr	0	2	20	62	16

VP - Very Poor P - Poor F - Fair
G - Good EX - Excellent

State Summaries of Weather and Agriculture

These summaries provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by NASS State Statistical Offices in cooperation with the National Weather Service.

ALABAMA: Rainfall none to 1.47 in. north; none to 0.04 in. central; none to 0.32 in. south. Temperatures 2 to 7° above normal statewide. Lows 38 to 47° north; 38 to 53° central; 48 to 60° south. Highs 84 to 88° north; 86 to 92° central; 86 to 90° south.

Days suitable for fieldwork 5.8. Soil moisture 17% short, 76% adequate, 7% surplus. Percent acreage prepared 81%, 78% 1993, 80% avg. Corn planted 77%, 72% 1993, 83% avg. Sorghum planted 22%, 15% 1993, 26% avg. Peanuts planted 24%, 33% 1993, 39% avg. Wheat headed 71%, 46% 1993, 78% avg.; turning color 12%, 10% 1993, 25% avg.; 30% fair, 62% good, 8% excellent. Pasture 2% poor, 20% fair, 76% good, 2% excellent. Livestock 27% fair, 71% good, 2% excellent. Seasonal activities: Planting corn, cotton, peanuts, sorghum, soybeans, vegetables.

ARIZONA: Temperatures 5 to 10° below normal. Extremes 21°; 80° higher elevations: 35°; 89° deserts. Precipitation all stations; trace to 1.69 in.

Cool weather had little effect on cotton progress, condition; cotton planted to date 87%, 76% 1993, 79% avg. Condition remains good. Small grain heading 98%, 97% 1993, 97% avg.; turning color 67%, 60% 1993, 55% avg. Condition good to excellent. Alfalfa good to excellent. Harvest progress light to heavy. Weed infestations mostly light. Insect, disease infestations mostly moderate. Grapefruit, lemons, valencia oranges, peaches available central, western areas. Winter vegetable harvest slowing. Available from western, central areas, potatoes. Central crops also available included beets, broccoli, cabbage, carrots, cauliflower, green onions, kale, kohlrabi, leeks, iceberg, romaine lettuce, mixed greens, parsley, spinach, swiss chard, turnips. Iceberg lettuce harvest underway eastern areas. Tomatoes also remain available. Range, pasture conditions varied. Slight improvement from previous month. Range pasture feed 78% normal, 3% points higher than in March. Cattle, calves remain in fair to good condition. Stockwater, soil moisture supplies rated short to adequate. Below average to average amounts of feed supplies remained available. Insect damage was very light.

ARKANSAS: Temperatures varied widely, slightly above normal. Scattered thunderstorms occurred the last half of the week, heavy in the northwest. Extremes 35°; 92°. Precipitation 0.04 to 5.19 in.

Days suitable for fieldwork 6. Soil moisture 45%, short, 46% adequate, 9% surplus. Crop development generally ahead of schedule. Flushing of rice fields widespread, some levee construction, application of herbicides. Widespread treatment for armyworms on wheat. Corn planted 95%, 57% 1993, 79% avg. Peaches, strawberries, tomatoes mostly good. Strawberry harvest underway in some areas. Fertilization, weed control of pastures ongoing. Soil preparation, planting of summer grasses underway. Pasture conditions: 26% fair, 73% good, 1% excellent. Alfalfa conditions: 31% fair, 69% good. Other hay conditions: 33% fair, 67% good. Livestock good. Vaccination, worming continued for cattle, some fly, tick problems reported, good gains reported in several areas.

CALIFORNIA: Rain most locations early in week. Several locations over an inch. Temperatures 5° below normal.

Rainfall slowed field activities most areas. Small grains excellent growth, dryland fields improved after rains. Lodging problem some areas. Rice planting delayed wet conditions. Seeded fields sprayed weeds, water weevils, shrimp. Cotton planting active where conditions allowed. Some emerged fields damaged by heavy rain Fresno County, will be re-seeded. Corn planted grain, silage between rains, emerged fields treated weeds. New crop sugarbeets cultivated. Over-wintered sugarbeet harvest slowed by wet soils. Alfalfa, oats, forage mixes cut hay, greenchopped. Some harvested alfalfa, oat hay rain damage. Orchard floor work continued. Stone fruit thinned. Yuba area stone fruit damaged, cold weather. Harvest early desert peaches, nectarines. Walnuts leafed out. Treatment walnut blight. Cherries, break color; growers tried to prevent growth cracks. Bloom pomegranate, kiwifruit Tulare. Valencia harvest continued. Fresno, Valencia harvest slowed, rain. Navels treated thrips, worms. Harvest desert grapefruit, avocado, Navel orange, lemons continued. Strawberry harvest continued. Rain damaged ripe strawberries. Wet fields, cool weather slowed asparagus harvest central valley, supplies good Salinas, Stockton Delta. Broccoli movement light Salinas-Watsonville, Santa Maria. Cauliflower supplies central coast light. Harvest cabbage continued Fresno County. Celery harvested south coast. Head Lettuce harvest Fresno County completed. Demand head lettuce moderate, good with steady market. Leaf, Romaine lettuce San Joaquin Valley light. Melons planted Sutter County, Palo Verde Valley melons treated whitefly. Onions, garlic forming bulbs Tulare County, while harvested Riverside County. Peppers planted central valley. Spring potato harvest Riverside County completed. Squash harvested central, desert valleys. Sweet potatoes planted Fresno County. Fresh market tomatoes planted San Joaquin Valley. Processing tomato fields blooming Tulare County. Other crops being harvested: radishes, turnips, oriental vegetables. Cattle, sheep remained good condition. Recent precipitation beneficial range, pasture, many areas. Little effect drier regions, grasses very brown. Rangeland forage adequate, dried out, lower elevations. Supplements fed. Stockers shipped from ranges to feedlots. Sheep grazing dry land wheat, barley, stubble fields.

COLORADO: Cool upper level low pressure dominated the weather for much of the week. Several upper level systems moved out of the southwest, bringing considerable precipitation to the Rocky Mountain region. Rain, snow, and thunderstorms with some hail continued into the weekend. Most locations had temperatures 4 to 8° below normal for the week, many of which were below freezing for morning lows.

Days suitable for fieldwork 2.9. Soil moisture 8% short, 86% adequate, 6% surplus. Moderate freeze damage late in week reducing yield potential. Spring barley 67% seeded, 65% 1993, 75% avg.; 46% emerged, 40% 1993, 44% avg. Oats 70% seeded, 52% 1993, 69% avg.; 44% emerged, 31% 1993, 43% avg. Dry onions 94% planted, 80% 1993, 80% avg.; 5% poor, 10% fair, 65% good, 20% excellent; some freeze damage late in the week. Sugarbeets 100% planted, 93% 1993, 94% avg. 40-50% sugarbeets need replanting due to freeze damage. Spring wheat 44% planted, 23% 1993, 45% avg.; 26% emerged, 15% 1993, 16% avg. Corn 28% planted, 28% 1993, 27% avg. Summer potatoes 90% planted, 50% 1993, 58% avg. Some emerged corn and potatoes freeze damaged. Fall potatoes 10% planted, 6% 1993, 5% avg. Winter wheat 53% jointed, 31% 1993, 41% avg.; 3% very poor, 6% poor, 25% fair, 50% good, 16% excellent. Cows calved 89%, 87% 1993, 88% avg. Ewes lambed 91%, 87% 1993, 88% avg. Livestock good to excellent. Pasture, range feed condition mostly good.

FLORIDA: Temperatures 0 to 5° above normal. Highs; mid 80s to low 90s. Lows; upper 50s to low 70s. Rain on 0 to 2 days, except 3 to 5 days east-central, southeast. Rain less than 0.25 in. to over 3.00 in.

Soil moisture adequate Panhandle, north, Central Peninsula mostly short, scattered adequate areas. Southern Peninsula adequate, scattered areas of surplus. Peanut, cotton planting active. Pecans in full bloom. Some dryland crops drought stressed. Sugarcane making good progress. Citrus groves, trees very good condition. Moisture adequate, very little irrigation. Fruit remaining good condition. Valencia harvest very active all areas. Seedless grapefruit movement slowing as supplies are low. Temple, Honey tangerine harvest all but over. Caretakers cutting cover crops, hedging, topping, post bloom spraying. Rain, wet field conditions early in week hampered corn, squash, tomato harvest south. Some southern locations received heavy (6-inch) rains. Some water damage noted Southwest. Hail, wind damage noted West Central coast, southwest production areas. Snap bean harvest to start north this week. Leading vegetable shipments: Potatoes, tomatoes, watermelons, sweet corn, cucumbers. Also available: Snap beans, blueberries, cabbage, carrots, celery, chinese cabbage, eggplant, escarole, iceberg lettuce, leaf lettuce, okra, parsley, romaine, specialty lettuces, peppers, radishes, squash, cherry tomatoes. Pasture feed 5% poor, 30% fair, 60% good, 5% excellent. Cattle herds fair to good.

GEORGIA: Warm, dry. Temperatures 3 to 7° above normal. Warmest mostly upper 80s maximums 90° reported. Coolest low, mid 40s extreme north, upper 50s to low 60s south. Scattered showers, thunderstorms midweek, late in weekend 30th, 1st. Rain totals light. Local rain totals 1.00 in. or more over north areas in locally severe thunderstorms Wednesday evening.

Days suitable for fieldwork 6.1. Soil moisture 4% very short, 51% short, 42% adequate, 3% surplus. Corn 14% fair, 82% good, 4% excellent. Cotton 24% fair, 73% good, 3% excellent. Sorghum 10% fair, 89% good, 1% excellent; 44% planted, 12% 1993, 19% avg. Peanuts 15% fair, 83% good, 2% excellent; 49% planted, 33% 1993, 30% avg. Tobacco 27% fair, 66% good, 7% excellent; 100% transplanted, 96% 1993, 99% avg. Other small grains 14% fair, 76% good, 10% excellent. Onions 11% fair, 45% good, 44% excellent; 30%

harvested, 2% 1993, 28% avg. Watermelons 41% fair, 59% good; 94% planted, 94% 1993, 94% avg. Other vegetables 15% fair, 85% good. Apples 8% fair, 86% good, 6% excellent; 100% blooming, 95% 1993, 98% avg. Peaches 92% good, 8% excellent; 4% harvested, 0% 1993, 1% avg. Pasture 1% poor, 18% fair, 78% good, 3% excellent. Cattle 4% fair, 94% good, 2% excellent. Hogs 2% fair, 96% good, 2% excellent. Activities: Land preparation, spring planting, cutting hay, spraying fruit trees.

HAWAII: High pressure system north of State brought typical trade wind weather to island chain. Mostly sunny, warm with passing showers. Temperatures varied mid 60s to mid 80s. Winds 10 to 20 mph. Rainfall none to 3.70 in.

Crops made good progress, development. Papaya production at low level, some disease problems resulting from previously wet weather major growing areas. Sugar harvesting active all islands.

IDAHO: Temperatures 5° above to 7° below normal. Extremes 21°; 70°. Precipitation 0.09 to 0.89 in. north, 0.26 to 0.77 in. southwest, none to 1.16 in. south-central, 0.02 to 0.25 in. east.

Days suitable for fieldwork 4. Soil moisture 29% short, 71% adequate. Potatoes planted 39%, 18% 1993, 32% avg. Spring barley planted 82%, 43% 1993, 71% avg. Spring barley emerged 53%, 8% 1993, 42% avg. Oats planted 60%, 27% 1993, 54% avg. Oats emerged 34%, 4% 1993, 31% avg. Sugarbeets planted 98%, 78% 1993, 94% avg. Sugarbeets emerged 68%, 9% 1993, 43% avg. Onions emerged 94%, 6% 1993, 46% avg. Dry edible peas planted 63%, 4% 1993, 48% avg. Dry edible peas emerged 41%, 1% 1993, 27% avg. Lentils planted 60%, 1% 1993, 43% avg. Lentils emerged 40%, 0% 1993, 26% avg. Irrigation water supplies 1% very poor, 9% poor, 18% fair, 63% good, 9% excellent. Hay, roughage supplies 7% poor, 90% fair, 3% good. Activities: Irrigating, planting potatoes thinning sugarbeets, weed control, branding, fencing, moving cattle. Livestock good calving 97% complete, lambing 98% complete.

ILLINOIS: Wet, sometimes stormy weather prevailed with temperatures averaging on the cool side across the northern half of the State. Temperatures 3 to 6° below normal across the north, as much as 3 to 5° above normal in the far south. Highs low 60s to mid 70s; average lows 40 to 55°. Most of the State received at least 1.00 in. of rain with 2.00 to 3.00 in. common in the southern half.

Days suitable for fieldwork 4.0. Soil moisture 2% short, 47% adequate, 51% surplus. Oats planted 97%, 29% 1993, 80% avg. Pasture 95% normal. Alfalfa 2% poor, 23% fair, 72% good, 3% excellent. Significant fieldwork was accomplished across the northern half of the State with a lesser amount completed in the south due to continued wet soils in some areas. Storms returned late in week though and delayed progress statewide again. Farm activities: Spreading fertilizer, spraying pesticides, planting corn, some soybeans.

INDIANA: Summer heat on 26th was followed by a severe thunderstorm, tornado outbreak at night, early 27th. A cold front produced the severe weather, cooler temperatures. Another storm system brought heavy rains early in the weekend. High temperatures 60s in the north to the 70s in the south, which was close to normal across the State. Extremes were 80s on 26th, below freezing on 25th morning. Precipitation 1.00 to 2.00 in. north, east central to 3.00 to 4.00 in. south, west central. This was wetter than normal by around 0.30 to 3.00 in. Daily average 4-inch soil temperatures under bare ground averaged in the mid 60s to the mid 70s across State.

Planting, tillage continued at a strong pace. Spring activities are at or ahead of normal in the north, central areas of State while lagging slightly behind in the south. Pasture conditions continue to improve. Livestock are reported to be in good condition in most areas. Main activities: Tillage in many fields, planting corn, soybeans, seeding oats, applying fertilizer, herbicides. Pastures 91% of normal, 88% last week. Topsoil 57% adequate, 43% surplus. Subsoil 70% adequate, 30% surplus. Oats seeded 88%, 35% 93, 71% avg. Spring tillage 78%, 45% 93, 75% avg. Hay, roughage availability 9% surplus, 83% adequate, 8% short.

IOWA: Temperatures 1° below normal extreme east to 10° subnormal northwest. Extremes 23°; 89°. Widespread thunderstorms 25th, rain, snow 28th, 30th. Up to 8 in. snow far northwest 28th, up to 6 in. snow east on 29th. Precipitation, 0.46 in. north central to 2.16 in. northeast; average 0.94 in. (normal 0.81 in.).

Days suitable for fieldwork 4.4 Topsoil 11% short, 80% adequate, 9% surplus. Subsoil 1% short, 90% adequate, 9% surplus. Corn emerged 5%, 0% 1993, 0% avg. Oats emerged 85%, 2% 1993, 52% avg. Fertilizer application 95%, 34% 1993, 72% avg. Primary seedbed preparation 90%, 29% 1993, 70% avg. Pasture 87%. Winter wheat 1% poor, 28% fair, 63% good, 8% excellent. Pasture 1% very poor, 6% poor, 34% fair, 52% good, 7% excellent. Oats 2% poor, 23% fair, 67% good, 8% excellent. Livestock continue to be in mostly good condition. Conditions remained good for calving, farrowing. The rapid temperature changes have caused some problems for non-confined livestock.

KANSAS: Temperatures 6° below normal southwest, 4° below normal central; 1 to 3° below normal elsewhere. Precipitation heaviest, flooding east-central, southeast. Elsewhere amounts varied from 0.45 west central to 1.67 south-central.

Days suitable for fieldwork 2.5. Topsoil 3% short to very short, 53% adequate, 44% surplus. Subsurface moisture 5% short to very short, 74% adequate, 21% surplus. Severe storms crossed State. Western, south central districts light to moderate freeze damage from previous weeks. Extent of freeze damage from this week unknown at this time. Flooding low-lying areas east-central, southeast. Central, western moisture levels improved significantly. Corn planting progressed rapidly until wet weather moved in midweek. Many replanted fields in southeast flooded out a second time. Oats planted 100%, 75% 1993, 95% avg. Wheat jointing 90%, 55% 1993, 70% avg. Disease, insect infestations remain light, however, moderate infestations of Russian wheat aphids reported in the southwest. Farmers will be assessing freeze damage next few weeks. Pasture, ranges mostly good, few fair or excellent. Cattle receiving 60% roughage requirements from pastures. Burning of pastures continues. Pastures received much needed moisture, however growth in extremely cold areas was slowed.

KENTUCKY: Wet, warm. High temperatures 4 to 8° above normal, lower 70s to lower 80s. Low temperatures 6 to 12° above normal, 40° to mid 40s. Scattered showers, thunderstorms, some very severe. Precipitation 0.50 in. to over 4.00 in., heaviest amounts northern areas.

Days suitable fieldwork 3.9. Soil moisture 2% short, 72% adequate, 26% surplus. Heavy rain weekend saturated many areas, caused local flooding. Field preparation, corn planting active early, then halted by rain. Warm temperatures favorable corn germination. Tobacco plants near normal development, 10% 4 in. plus, 30% 2 to 4 in. Wheat 25% headed and heading, 11% 1993, 24% avg. Condition wheat mostly good, some concern diseases. Alfalfa harvest beginning, avg. beginning 11th. Pastures green, rapid growth.

LOUISIANA: Temperatures 5.5 to 7.7° above normal. Extremes 55°; 92°. Rainfall 0.30 central, 1.76 central in.

Days suitable for fieldwork 5.4. Soil moisture supplies 12% short, 74% adequate, 14% surplus. Corn 50 % fair, 50% good; 99% planted, 93% 1993, 96% avg.; 95% emerged, 82% 1993, 91% avg. Fertilization active. Cotton 44% emerged, 9% 1993, 22% avg. Moved ahead rapidly in the top parishes because of ideal weather. Hay 15% first cutting, 12% 1993, 8% avg. Rice 63% fair, 37% good; 60% emerged, 45% 1993, 55% avg. Made good progress. Wheat 1% poor, 50% fair, 49% good; 95% headed, 87% 1993, 93% avg.; 22% turning color, 20% 1993, 30% avg. Some scab reported in the southwestern parishes. Sorghum 32% emerged, 5% 1993, 34% avg. Good progress was made due to favorable weather in the north. Soybeans 5% planted, 1% 1993, 2% avg. Planting early varieties was active. Spring plowing 91% plowed, 80% 1993, 81% avg. Sweet Potatoes 4% planted, 4% 1993, 6% avg. Sugarcane 2% poor, 51% fair, 47% good. Fertilization continued. Livestock 55% fair, 40% good, 5% excellent. Pasture 1% poor, 6% fair, 88% good, 5% excellent. Most pasture land was in good shape. Vegetables 26% fair, 72% good, 2% excellent.

MARYLAND & DELAWARE: MARYLAND: Precipitation 0.36 in., normal 0.78 in. Temperature 65.0°, normal 56.3°. Extremes 23°; 92°.

Days suitable for fieldwork 6.0. Topsoil 5% short, 90% adequate, 5% surplus. Subsoil 85% adequate, 15% surplus. Pasture excellent. Small grain fair to good. Barley 53% headed, 28% 1993, 44% avg. Rye 36% headed, 22% 1993, 37% avg. Corn grain 23% planted, 15% 1993, 22% avg. Sweetcorn 20% planted, 22% 1993, 22% avg. Potatoes 29% planted, 78% 1993, 79% avg. Watermelons 29% planted, 1% 1993, 7% avg. Cantaloupes 35% planted, 4% 1993, 7% avg. Cucumbers 41% planted, 16% 1993, 12% avg. Snap beans 38% planted, 22% 1993, 25% avg. Tomatoes 53% planted, 22% 1993, 21 avg. Apples 47% bloomed, 25% 1993, 65% avg. Strawberries 50% bloomed, 22% 1993, 54% avg. DELAWARE: Precipitation 0.20 in., normal 0.74 in. Temperature 64.8°, normal 56.3°. Extremes 36°; 89°.

Days suitable for fieldwork: 6.7. Topsoil 83% adequate, 17% surplus. Subsoil 83% adequate, 17% surplus. Pasture condition excellent. Small grain condition fair. Barley 63% headed, 36% 1993, 50% avg. Rye 44% headed, 24% 1993, 45% avg. Corn grain 26% planted, 22% 1993, 32% avg. Sweet corn 25% planted, 31% 1993, 29% avg. Potatoes 63% planted, 79% 1993, 87% avg. Apples 59% bloomed, 40% 1993, 75% avg. Strawberries 60% bloomed, 22% 1993, 41% avg.

MICHIGAN: Extremes 22°; 88°. Precipitation 0.35 to 3.84 in.
Days suitable for fieldwork 3.0. Soil moisture 10% short, 45% adequate, 45% surplus. Corn 10% planted, 1% 1993, 5% avg. Oats 60% planted, 10% 1993, 45% avg. Potatoes 15% planted, 1% 1993, 10% avg. Sugarbeets 75% planted, 1% 1993, 40% avg. Soybeans 0% planted, 0% 1993, 0% avg. Winter wheat 0% headed, 0% 1993, 0% avg.; 3% very poor, 7% poor, 25% fair, 45% good, 20% excellent. Pasture condition 75% of normal. Activities: Spreading fertilizer; hauling manure; waiting to continue spring planting.

MINNESOTA: Temperatures 2 to 10° below normal for the State. Extremes 20°; 85°. Precipitation 1.00 to 3.00 in. above normal for the State. Greatest weekly total was 4.44 in.
Days suitable for fieldwork 1.5. Topsoil 8% adequate, 92% surplus. Corn 51% land prepared, 14% 1993, 35% avg.; 31% planted, 3% 1993, 13% avg. Soybeans 8% land prepared, 4% 1993, 10% avg.; 1% planted, 1% 1993, 1% avg. Spring wheat 36% planted, 45% 1993, 56% avg.; 6% emerged, 2% 1993, 23% avg. Oats 67% planted, 34% 1993, 56% avg.; 20% emerged, 2% 1993, 20% avg. Barley 24% planted 38% 1993, 42% avg.; 2% emerged, 2% 1993, 7% avg. Sugarbeets 33% planted, 49% 1993, 40% avg. Potatoes 14% planted, 10% 1993, 12% avg. Green peas 36% planted, 8% 1993, 32% avg. Sweet corn 7% planted, 1% 1993, 5% avg. Dry beans 1% planted, 1% 1993, 1% avg.

MISSISSIPPI: Temperatures 7.5° above normal. Extremes 42°; 93°. Heaviest rain occurred in the northwestern, with 1.36 in. Rainfall 0.54 in., 0.67 in. below normal. Soil temperature 77°.
Days suitable for fieldwork 6.5. Soil moisture 48% short, 52% adequate. Corn 92% planted, 57% 1993, 71% avg.; 78% emerged, 32% 1993, 57% avg.; 2% poor, 15% fair, 81% good, 2% excellent. Cotton 80% planted, 10% 1993, 32% avg.; 46% emerged, 0% 1993, 15% avg.; 4% poor, 14% fair, 54% good, 28% excellent. Peanuts 85% planted, 4% 1993, 17% avg. Rice 98% planted, 13% 1993, 40% avg.; 69% emerged, 5% 1993, 18% avg.; 24% fair, 60% good, 16% excellent. Sorghum 68% planted, 29% 1993, 40% avg.; 49% emerged, 20% 1993, 28% avg.; 63% fair, 27% good, 10% excellent. Soybeans 24% planted, 1% 1993, 3% avg.; 14% emerged, 0% 1993, 0% avg.; 31% fair, 49% good, 20% excellent. Sweetpotatoes 24% planted, 2% 1993, 15% avg. Watermelons 82% planted, 62% 1993, 71% avg.; 3% poor, 24% fair, 69% good, 3% excellent. Wheat 98% heading, 46% 1993, 82% avg.; 2% mature, 0% 1993, 5% avg.; 19% fair, 74% good, 7% excellent. Hay 9% harvested, 0% 1993, 1% avg. Livestock 6% fair, 80% good, 14% excellent. Pasture 85% of normal. Activities: Planting crops.

MISSOURI: Temperatures 2° below normal to 8° above normal. Rainfall 3.76 in., 2.42 in. northwestern, to 5.16 in. northeastern district. Rainfall heaviest over central, southern regions.
Days suitable for fieldwork 3.1. Topsoil 1% short, 23% adequate, 76% surplus. Ground worked at least once for spring crops 77%, 38% 1993, 79% avg. Corn planting most advanced northwest 67%, southwestern 71%, southeastern 72%. Oats planted 95%, 36% 1993, 85% avg. Pastures 1% poor, 29% fair, 59% good, 11% excellent.

MONTANA: Temperatures below normal. Precipitation moderate to heavy across most of the State.
Days suitable for fieldwork 1.6. Topsoil 9% short, 69% adequate, 22% surplus. Subsoil 17% short, 75% adequate, 8% surplus. Spring wheat 10% emerged, 0% 1993, 5% avg. Barley 58% planted, 17% 1993, 43% avg.; 11% emerged, 0% 1993, 5% avg. Oats 39% planted, 20% 1993, 34% avg.; 5% emerged, 0% 1993, 3% avg. Sugarbeets 73% planted, 40% 1993, 51% avg.; 32% emerged, 0% 1993, avg. NA. Dry beans 1% planted, 5% 1993, 1% avg. Potatoes 11% planted, 2% 1993, 3% avg. Calving 93% complete, lambing 82% complete. Cattle, calves moved to summer pastures 13%, sheep, lambs, 10%.

NEBRASKA: Temperatures 9 to 15° below normal. Rain and snow fell throughout week. Rainfall 0.70 in. west to 1.40 in. central.
Days suitable for fieldwork 3.9. Topsoil 10% short, 76% adequate, 14% surplus. Subsoil 2% short, 94% adequate, 4% surplus. Wheat 37% fair, 54% good, 9% excellent; 33% jointed, 20% 1993, 39% avg. Corn 31% planted, 9% 1993, 26% avg. Alfalfa 2% very poor, 2% poor, 28% fair, 66% good, 2% excellent. Pasture, range condition 97% of normal.

NEVADA: Widespread showers, thunderstorms, heaviest north, central areas. Temperatures below normal. Extremes 20°; 88°.
Surface irrigation water supplies short. Progress most crops slightly ahead of normal. Potato planting about 50% complete. Calving, lambing, shearing nearly completed. Livestock movement to summer ranges continues. Ranges generally poor to fair condition.

NEW ENGLAND: Precipitation 0.07 to 1.53 in. regionwide. Temperatures 40 to 54° north; 54 to 61° south. Highs 60 to 87° north; 65 to 89° south. Lows 23 to 40° north; 37 to 49° south.
Major farm activities: Greenhouses selling spring flowers, early bedding plants. Planting peas, other cool season vegetables. Plowing fields, spreading manure, other fertilizer in preparation for planting field crops. Some planting of field corn, sweet corn on drier soils. Pruning blueberry fields.

NEW JERSEY: Temperatures much above normal. Extremes 36°; 93°. Rainfall 0.61 in. north, 0.24 in. central, 0.15 in. south. Heaviest 24 hour total 0.52 in. Estimated soil moisture, in percent of field capacity, averaged 75% north, 64% central, 40% south. Four-inch soil temperatures 58° north, 59° central, 62° south.
Days suitable for fieldwork 5 to 6. Ground preparation 1 week behind. Planting of spring vegetables, potatoes, corn, sweet corn continues. Limited planting peppers, tomatoes, squash. Peaches at or past full bloom in most areas. Apples beginning bloom. Strawberries, early varieties of blueberries in full bloom.

NEW MEXICO: Below normal temperatures ranged from 16° below at Tucumcari to 4° below at Carlsbad. Precipitation mostly over the northern half with a maximum 2.00 in. recorded at Des Moines.
Days suitable for fieldwork 5.8. Soil moisture 72% short, 21% adequate, 3% surplus. Light freeze damage in a few spots affecting fruit, nut trees. Wind damage light to moderate across the State affecting chile, alfalfa, cotton. Cropland conditions: Alfalfa 7% poor, 37% fair, 52% good, 4% excellent. Irrigated wheat 5% poor, 45% fair, 50% good. Dryland wheat 20% very poor, 60% poor, 20% fair. Wheat crop 17% headed. Onions, lettuce fair to excellent. Cattle, sheep very poor to good with 84% in the fair to good range. Range feed condition 53% of normal.

NEW YORK: Warm week, averages above normal all areas. Extremes 25°; 88°. Rainfall 135% of normal in the Great Lakes, Champlain Valley areas, 175% of normal in the St. Lawrence Valley, below normal in the Hudson Valley, Coastal Divisions, near normal elsewhere. The most rain received was 1.37 in.
Days suitable for fieldwork 5.8. Soil moisture mostly adequate to surplus. Pasture condition 96% of normal. Ideal conditions for tillage, planting. Corn 3% planted, 3% 1993, 4% avg. Oats 28% planted, 19% 1993, 39% avg. Hay, wheat mostly good. Long Island potato planting 85% finished. Upstate planting gaining momentum. Conditions excellent in Lake Ontario region for planting fruit trees. Windy weather hindered application of early sprays. Fruit crops developing rapidly. Pears, cherries at bud burst stage. Vegetable planting progressing rapidly. Field mulches being removed from strawberries. High winds, blowing soil on Orleans-Genesee muck necessitated replanting onions. Orange County onion planting near completion.

NORTH CAROLINA: Mean temperatures 4 to 13° above normal. Smallest departures were in the mountains. Rainfall 1.46 in. at Waynesville Experiment Station to no precipitation at many locations.
Days suitable for fieldwork 6.2. Soil moisture 10% very short, 62% short, 27% adequate, 1% surplus. Crop conditions: Wheat 25% fair, 72% good, 3% excellent; oats 3% poor, 23% fair, 71% good, 3% excellent; barley 15% fair, 84% good, 1% excellent; rye 7% fair, 92% good, 1% excellent; pasture 1% poor, 28% fair, 68% good, 3% excellent; outside tobacco plant bed; 9% fair, 87% good, 4% excellent; corn 12% fair, 86% good, 2% excellent; hay 6% poor, 28% fair, 64% good, 2% excellent; peaches 4% poor, 12% fair, 76% good, 8% excellent; truck crops 40% fair, 60% good; hay, roughage supplies 5% very short, 18% short, 77% adequate; feed grain supplies 2% short, 79% adequate, 19% surplus. Peanuts planted 19%, 5% 1993, 9% avg.; corn planted 75%, 58% 1993, 60% avg.; soybeans planted 15%, 8% 1993, 15% avg.; flue cured tobacco transplanted 52%, 36% 1993, 44% avg.; cotton planted 21%, 11% 1993, 21% avg. Activities included: Transplanting tobacco; planting corn, cotton; cutting hay, preparing land for planting. Other activities included: Planting potatoes, vegetables; tending livestock; equipment repair.

NORTH DAKOTA: Storm produced heavy snow, rain over southern two-thirds of State. Precipitation 0.06 in. north central to 1.72 in. southeast. Temperatures 12 to 14° below normal. Extremes 15° southwest, south central; 86° east central.
Days suitable for fieldwork 2.6. Soil moisture above average. Topsoil 4% short, 80% adequate, 16% surplus. Subsoil 4% short, 83% adequate, 13% surplus. Small grain planting progress behind 1993 and average. Hard red spring wheat 17% planted, 34% 1993, 39% avg.; durum wheat 7%, 17% 1993, 19% avg.; barley 17%, 35% 1993, 37% avg.; oats 11%, 29% 1993, 35% avg. Winter wheat 21% fair, 70% good, 9% excellent; 12% dormant, 67% green, 21% stooling.

Sugarbeets 38% planted, 59% 1993, 45% avg.; corn 3%, 1% 1993, 3% avg.; flax 0%, 1% 1993, 2% avg.; potatoes 6%, 4% 1993, 2% avg. Roughage requirements furnished by pastures 22%; pastures 93% of normal. Calving 92% complete, lambing 95%, shearing 95%. Stockwater supplies 1% short, 87% adequate, 12% surplus.

OHIO: Warm dry weather early in the week with highs around 80°. Midweek showers were variable; weekly totals in excess of 0.50 in. were common. Over 2.00 in. was reported at Cincinnati, Oxford. Early in the period, a high of 87° was reported at Delaware. Highs averaged in the mid 60's north to the upper 70's south. Departures from normal ranged from zero in the northwest to as high as 8° above normal in the southeast. Lows averaged in the mid 40's north to the low 50's, which was 3° to 10° above normal. At week's end, clear cold weather settled in, allowing lows to fall into the low 30's over most of the State. Soil temperatures at 4 in. under bare ground averaged in the 50's. As cooler weather developed, soil temperatures fell back into the 40's in parts of the north.

Days suitable for fieldwork 5.7. Soil moisture 14% short, 70% adequate, 16% surplus. Many crops are above their five year planting date averages as conditions were ideal for planting. Winter wheat 4% poor, 22% fair, 56% good, 18% very good. Oats planted 79%, 24% 1993, 65% avg. Potatoes planted 75%. Corn planted 47%, 10% 1993, 18% avg. Soybeans planted 9%, 0% 1993, 0% avg. Pasture 1% very poor, 7% poor, 26% fair, 54% good, 12% very good. Hay 4% poor, 29% fair, 55% good, 12% very good.

OKLAHOMA: Temperatures 1° below normal southeast to 12° below normal Panhandle. Precipitation 1.02 in. Panhandle to 4.62 in. southeast.

Days suitable for fieldwork 4.5. Topsoil 19% short, 43% adequate, 38% surplus. Subsoil 42% short, 58% adequate. Oats 72% jointing, 37% 1993, 88% avg.; 26% headed, 3% 1993, 32% avg. Barley 72% jointing, 29% 1993, 91% avg.; 23% headed, 1% 1993, 30% avg. Corn 13% fair, 87% good; 99% seedbed prepared, 94% 1993, 95% avg.; 80% planted, 83% 1993, 65% avg.; 61% up to stand, 49% 1993, 29% avg. Soybeans 80% seedbed prepared, 36% 1993, 66% avg.; 20% planted, 12% 1993, 7% avg.; 5% up to stand, 3% 1993, 1% avg. Peanuts 75% seedbed prepared, 66% 1993, 60% avg.; 2% planted, 0% 1993, 2% avg. Pasture 90% of normal. Cattle good; marketings average, prices steady to slightly lower.

OREGON: Temperatures above normal early, well below normal midweek, ended week above normal. Klamath Falls set record on 1st at 84°. Record lows were broken on 28th morning in eastern areas with teens, 20's over a wide area. Precipitation was sparse with only a few coastal stations recording more that a tenth of a inch.

Soil moisture 91% short, 9% adequate. Winter wheat 74% planted, 37% emerged. Winter barley 55% planted. Field prep for fallseeding in cereal grains continues. Sugarbeet harvest continues, Malheur County. Hazelnut harvest continues; Willamette Valley. Apple harvest complete. Cranberry harvest continues, steady pace, good quality, size, color; southern coast. Pruning, training caneberries. New strawberry fields looking good. Potato harvest continues, Malheur, Klamath. Some onions left to harvest, Malheur. Sweet corn harvest finishing up, Willamette Valley. Cauliflower processing underway. Livestock good. Pastures, ranges still very dry, needing rain. Fall cattle, calf processing underway. Hay, protein supplements continue being fed. Range, pasture condition 56% of normal.

PENNSYLVANIA: Well above normal temperatures, precipitation. Severe thunderstorms on the 30th. Temperature 68°, 18° above normal. Extremes 23°; 90°. Precipitation 1.20 in., 0.38 in. above normal.

Days suitable for fieldwork 6. Soil moisture 22% short, 77% adequate, 1% surplus. Plowing 54% complete, 23% 1993, 54% avg. Corn 10% planted, 3% 1993, 7% avg. Oats 59% planted, 29% 1993, 60% avg. Potatoes 31% planted, 6% 1993, 26% avg. Tobacco beds 100% planted, 96% 1993, 95% avg. Barley 16% boot, 1% 1993, 11% avg. Wheat 10% boot, 2% 1993, 6% avg.; 2% very poor, 5% poor, 24% fair, 52% good, 17% excellent. Hay stands mostly good. Feed from pastures poor to fair. Peaches 50% pink, 51% 1993, 64% avg.; 36% full bloom or past, 30% 1993, 43% avg. Cherries 65% pink, 49% 1993, 61% avg.; 50% full bloom or past, 31% 1993, 42% avg. Apples 40% pink, 30% 1993, 43% avg.; 15% full bloom or past, 3% 1993, 17% avg. Activities: Plowing; planting oats; planting corn; spreading fertilizer; hauling manure; caring for livestock.

PUERTO RICO: Rainfall 0.73 in. was 0.53 in. below normal. Highest total rainfall 2.80 in. at Maricao 2SSW, 2.57 in. at Dos Bocas, 2.28 in. at Corozal Aes. Island temperatures 78 to 79° on the coasts, 73° interior with mean station temperature 81.1 at San Juan WSFO to 60.9° Cerro Maravilla. Extremes 54°; 94°.

SOUTH CAROLINA: Temperatures 5 to 8° above normal statewide. Rainfall 0.10 in.

Days suitable for fieldwork 6.2. Soil moisture 23% very short, 68% short, 9% adequate. Tobacco fair to good; 96% planted, 79% 1993, 85% avg. Corn fair to good; virtually planted. Cotton 49% planted, 23% 1993, 23% avg. Cantaloupes fair to good; 84% planted, 75% 1993, 75% avg. Watermelons fair to good; 86% planted, 80% 1993, 83% avg. Cucumbers fair to good; 82% planted, 76% 1993, 78% avg. Snapbeans good; 64% planted, 60% 1993, 62% avg. Tomatoes good; virtually planted. Oats fair to good; 86% headed, 61% 1993, 81% avg.; 20% turning color, 3% 1993, 11% avg. Rye fair to good; 27% turning color, 8% 1993, 16% avg. Wheat fair to good; 95% headed, 47% 1993, 77% avg.; 12% turning color, 0% 1993, 10% avg. Peanuts 53% planted, 30% 1993, 30% avg. Pastures 3% very poor, 4% poor, 59% fair, 34% good.

SOUTH DAKOTA: Unseasonably cool, wet. Temperatures 10 to 15° below normal. Extremes -1°; 89°. Significant precipitation as rain, snow: 0.75 in. northwest to more than 2.00 in. Black Hills, south central, east central. Heaviest 2.86 in. west central.

Days suitable for fieldwork 3.0. Topsoil 4% short, 50% adequate, 46% surplus. Subsoil 7% short, 62% adequate, 31% surplus. Winter wheat 3% very poor, 4% poor, 23% fair, 63% good, 7% excellent. Winter rye 15% fair, 65% good, 20% excellent. Small grain planting progress near average, emergence below average. Barley 69% planted, 41% 1993, 70% avg.; 22% emerged, none 1993, 32% avg. Oats 73% planted, 37% 1993, 77% avg.; 28% emerged, 2% 1993, 42% avg. Spring wheat 72% planted, 58% 1993, 80% avg.; 32% emerged, 2% 1993, 39% avg. Corn 11% planted, 3% 1993, 5% avg. Flax 5% planted, 1% 1993, 13% avg. Livestock 2% poor, 13% fair, 74% good, 11% excellent. Calving 79% complete, lambing 80%. Feed supply 3% short, 86% adequate, 11% surplus. Pastures 85% of normal, 15% cattle moved to pastures. Water supply 69% adequate, 31% surplus.

TENNESSEE: Temperatures 4° above normal along the Plateau to 7° above normal in the west. Chattanooga was the warmest location with a high of 90°. Precipitation was scattered throughout the State with Union City receiving the highest weekly total of 3.64 in., Greeneville received the lowest weekly total of 0.04 in.

Days suitable for fieldwork 4.6. Soil moisture 87% adequate, 13% surplus. Corn 50% planted, 51% 1993, 48% avg. Cotton 10% planted, 6% 1993, 15% avg. Sorghum 7% planted, 3% 1993, 10% avg. Tobacco 92% plants up, 93% 1993, 96% avg.; 2% transplanted, 1% 1993, 2% avg. Wheat 95% jointed, 93% 1993, 95% avg.; 46% headed, 14% 1993, 37% avg.; 28% fair, 67% good, 5% excellent. Apples 91% blooming or beyond, 92% 1993, 98% avg. Alfalfa, 22% fair, 66% good, 12% excellent. Pastures, 12% fair, 77% good, 11% excellent. Cattle, 13% fair, 80% good, 7% excellent. Warm weather, sun allowed corn planting to return to normal. Cotton producers active in soil preparation. Tobacco plants are up, limited transplanting has begun. Wheat doing well; producers putting up excellent grain hay. First cuttings of alfalfa have begun; pastures continue to improve in condition.

TEXAS: Nearly stationary low pressure trough produced numerous showers, thunderstorms. Rainfall, extensive cloud cover kept mean temperature below normal in all areas except East Texas, Upper Coast, both of which recorded departures of +3°. Remaining areas had departures +1° to -14°. In contrast to temperature, precipitation was above normal last week, except for East Texas (-0.80 in.), which missed most of heavy thunderstorms. Most departures were between +1.50 to +2.00 in., especially in north central, south central sections. Some of larger totals at individual stations were 4.92 in. at San Antonio, 3.56 in. at Corpus Christi, 2.92 in. at Dallas Love Field. Mean soil temperature last week was mostly in low to mid 70s. Range of mean soil temperature 53° at Bushland to 81° at Corpus Christi. Highest daily soil maximum temperature was 94° at Beaumont, while lowest daily minimum soil temperature was 38° at Bushland.

Crops: Corn cool temperatures delayed planting in High Plains, while high winds damaged seedlings in some areas in Low Plains. In Central Texas, most fields were showing good development. Cultivation and fertilizer sidedressing occurred in North Texas. Corn 80% normal, 83% 1993. Cotton began to emerge in Blacklands while warm weather in southern areas allowed cotton to make good progress. In South Texas, cultivation activities ceased as rainfall occurred. Rice warmer temperatures in Upper Coast allowed stands to improve, become better established. Sorghum in Blacklands some replanting may be necessary due to damaging high winds, however, most fields showing signs of good development. Some outbreaks of chinch bugs reported. Sorghum planting common in Low Plains and Cross Timbers as weather permitted. Southern areas of Texas, sorghum stands progressing well. Sorghum 88% normal, 74% 1993. Soybeans stands in Blacklands growing rapidly, 24% planted, 37% 1993. Small grains received

moisture relief, many fields may be past stage for help. Extremely cold temperatures in plains may have caused additional damage to some wheat fields. Wheat 48% normal, 74% 1993. Peanuts 3% planted, 5% 1993. Sugarbeets 95% planted, 94% 1993. Sunflowers 7% planted, 25% 1993.

Commercial Vegetables: Rio Grande Valley: onion harvest began winding down. Cooler temperatures, light drizzle during end of week may also slow other vegetable harvest activities. Trans-Pecos chilies began emerging. Irrigation continued on onions, cantaloupes; cantaloupes making good growth. East Texas: harvesting of spring potatoes, dewberries, strawberries began. Some transplanting of sweet potatoes occurred. High Plains: cooler temperatures delayed planting. Onions continued to make good progress. Peaches in Edwards Plateau continued to size well, while several areas in Cross Timbers received hail damage. Pecans: trees continued leafing out, blooming.

Range and Livestock: Pasture, range conditions improved slightly as scattered rains fell. Additional rainfall is still needed in most areas to boost growth of spring grasses. Livestock remained in fair to good conditions as supplemental feeding continued in most areas.

UTAH: Temperature maximums 8° below normal; minimums 0.5° above normal. Precipitation moderate to heavy across entire State.

Days suitable for fieldwork 2.7. Soil moisture 8% short, 78% adequate, 14% surplus. Alfalfa hay height 6.10 in., 6.20 in. 1993, 8.8 in. avg. Winter wheat 87% good, 13% fair. Fall barley 87% good, 13% fair. Spring wheat planted 93%, 75% 1993; emerged 68%, 33% 1993, 71% avg. Barley planted 88%, 77% 1993; emerged 66%, 38% 1993, 69% avg. Oats planted 61%, 52% 1993, 73% avg.; emerged 38%, 21% 1993, 42% avg. Corn planted 33%, 9% 1993, 29% avg.; emerged 8%. Potatoes planted 28%. Cows calved 91%. Calf death loss normal. Ewes lambed on farm 96%. Ewes lambed on range 81%. Lamb death loss normal. Sheep sheared on farm 93%. Sheep sheared on range 79%. Pasture, range feed good to excellent.

VIRGINIA: Temperatures well above normal. Extremes 27°; 93°. Precipitation was scattered with a few heavy thunderstorms.

Days suitable for fieldwork 6.0. Topsoil 5% very short, 39% short, 54% adequate, 2% surplus. Barley 4% poor, 40% fair, 56% good. Wheat 64% fair, 36% good. Pasture 30% fair, 66% good, 4% excellent. Alfalfa hay 21% fair, 64% good, 15% excellent. Other hay 41% fair, 55% good, 4% excellent. Peaches 57% very poor, 4% poor, 18% fair, 21% good. Apple 28% fair, 72% good. Tobacco plant bed 64% fair, 36% good. Tobacco greenhouse 9% fair, 61% good, 30% excellent. Potato mostly fair. Corn 42% planted, 35% 1993, 41% avg. Corn 53% fair, 47% good. Peanuts planted 20%, 6% 1993, 15% avg. Soybeans planted 2%, 3% 1993, 3% avg. Cotton planted 52%, 10% 1993, 45% avg. Flue tobacco transplanted 7%, 5% 1993, 11% avg. Managing tobacco plantbeds, clipping tobacco greenhouses, some spraying for alfalfa weevils, harvesting rye for hay, haylage, scouting for cereal leaf beetles, spraying fruit trees, planting vegetables, irrigating some cabbage.

WASHINGTON: Temperatures 1° below to 5° above normal west; 2° below to 5° above normal east. Precipitation none to 0.44 in. west; 0.04 to 0.35 in. east.

Days suitable for fieldwork 6.5. Soil moisture 47% short, 52% adequate, 1% surplus. Hay, other roughage supplies 32% short, 66% adequate, 2% surplus. Range, pasture 25% poor, 52% fair, 23% good. Winter wheat dryland 11% poor, 29% fair, 46% good, 14% excellent; irrigated 2% fair, 93% good, 5% excellent. Spring wheat dryland 61% fair, 39% good; irrigated 2% fair, 98% good. Barley dryland 65% fair, 35% good; irrigated 100% good. Spring wheat 98% planted, 58% 1993, 88% avg.; 89% emerged, 37% 1993, 74% avg. Barley 96% planted, 42% 1993, 83% avg.; 89% emerged, 15% 1993, 61% avg. Potatoes 90% planted, 66% 1993, 74% avg.; 19% emerged, 13% 1993, 30% avg. Corn 25% planted, 41% 1993, 21% avg. State experienced cooler weather with scattered rainshowers. Winter grain conditions varied widely. Wheat streak mosaic virus was reported in winter wheat in the northern Columbia Basin, causing growing concern among farmers. Russian wheat aphid, Hession fly were both observed in spring wheat fields, potential impact was not yet known. Chemical thinning was underway in orchards. The set on apples appears to be rather large. Many berries were in the bloom to past bloom stages. Dairy farmers harvesting greenchop in the west.

WEST VIRGINIA: Temperature 66°. Extremes 29°; 91°. Precipitation 0.89 in.

Days suitable for fieldwork 4.5. Soil moisture 75% adequate, 25% surplus. Barley; good. Wheat 3% fair, 97% good. Hay 18% fair, 76% good, 6% excellent. Apples 30% poor, 70% fair. Peaches 100% very poor. Soil prepared 49%. Corn 36% planted, 5% emerged. Oats 78% planted, 26% emerged. Tobacco beds 100% planted, 70% emerged. Gardens 37% planted, 18% emerged. Soybeans planted 0%. Pastures 8% fair, 88% good, 4% excellent; 91% of normal. Cattle 95% good, 5% excellent. Sheep 98% good, 2% excellent. Hay feed supplies 16% very short, 52% short, 32% adequate. Other feed supplies 22% short, 79% adequate. Farm activities: Fertilizing, plowing, planting gardens, calving, lambing, mending fences.

WISCONSIN: Temperature 44°, 6° below normal. Extremes 18°; 90°. Precipitation 1.10 to 2.20 in.

Days suitable for fieldwork 1.3. Soil moisture 6% short, 43% adequate, 51% surplus. Pasture condition 79% normal, 67% 1993, 67% avg. Corn planted 16%, 1% 1993, 4% avg. Oats planted 62%, 8% 1993, 38% avg. Rain early in week, snow late in week slowed fieldwork. Alfalfa came through winter in good shape with 96% of the reporters indicating light to no damage. Reports of moderate damage came from the northwest and west central part of the State. Winter wheat came through the winter in even better shape with 98% of the reporters indicating light to no damage. Potato planting advanced on sandy soils.

WYOMING: Temperatures below normal. The exception was Moran which averaged 1° above normal. Gillette was the cold spot averaging 10° below normal. Precipitation was above normal except some north-central portions. Northeast was hit the hardest with snow. Sundance received the largest amount of precipitation with 2.45 in.

Days suitable for fieldwork 2.9. Topsoil 10% short, 88% adequate, 2% surplus. Subsoil moisture 15% short, 85% adequate. Spring wheat 29% planted, 26% 1993, 53% avg.; 18% emerged, 5% 1993, 23% avg. Oats 36% planted, 35% 1993, 47% avg.; 23% emerged, 6% 1993, 21% avg. Barley 27% planted, 30% 1993, 29% avg.; 55% emerged, 35% 1993, 50% avg. Sugarbeets 61% planted, 70% 1993, 76% avg.; 22% emerged, 3% 1993, 13% avg. Corn 24% planted, 11% 1993, 17% avg.; 0% emerged, 0% 1993, 1% avg. Potatoes 0% planted, 9% 1993, 18% avg.; 0% emerged, 0% 1993, 6% avg. Winter wheat 82% fair, 18% good. Barley 2% fair, 98% good. Alfalfa prospects 11% poor, 29% fair, 60% good. Spring calves born 91%, 91% 1993, 88% avg. Range flock ewes lambed 32%, 40% 1993, 49% avg.; shorn 79%, 71% 1993, 71% avg. Range, pasture 98%, 93% 1993, 82% avg.

(Continued from front cover)

6 inches in **Rapid City, SD**, and 7 inches in **Sheridan, WY**, **Dickinson, ND**, and **Jamestown, ND**. Snowfall in **Bismarck, ND** (8.3 inches) and **Fargo, ND** (7.5 inches) pushed seasonal totals to record levels. **Bismarck** has received 91.8 inches since last autumn, and **Fargo** 85.7 inches. Farther east, thunderstorms drenched the **upper Mississippi Valley** and **Great Lakes States**. With additional late-week precipitation, weekly totals ranged from 2 to 4 inches in a swath from **Minnesota** to **Michigan**. More than 3 inches fell at **Rochester, MN**, **Green Bay, WI**, and **Flint, MI**.

Farther south, severe thunderstorms regularly ripped across the **Plains**, while record warmth covered the **East**. More than 20 tornadoes struck on Monday, primarily from **South Dakota** to **Texas**, followed by more than 3 dozen more on Tuesday, mostly from the **Midwest** to the **Gulf Coast States**. More than 3 dozen additional tornadoes between Wednesday and Saturday brought the weekly total to approximately 100. Torrential rainfall accompanied thunderstorms from parts of **Texas** into the **middle Mississippi Valley**, eastward across the **Ohio Valley**. **Chanute, KS** received 6.66 inches of rain on Wednesday night, and weekly totals topped 4 inches in locations such as **Kansas City, MO** (4.13 inches) and **St. Louis, MO** (4.11 inches). Despite recent rains in **west-central Texas**, high winds (gusts above 50 mph) on Monday raised dust and reduced visibilities to as low as one-quarter mile in **Lubbock**. Farther east, more than a dozen daily record highs were tied or set early in the week, including 89-degree readings in **Atlantic City, NJ** (on Monday) and **New Orleans, LA** (on Tuesday).

Daily record cold first appeared in the **Plains** at midweek, as the mercury plunged to 30°F in **Amarillo, TX** and 21°F in **Tribune, KS**. By Thursday, moisture overran the cold air, generating out-of-season snow. **Dalhart, TX** had 2 inches on the ground Thursday morning. Later in the day, a very heavy band of snow developed from **Nebraska** to **Minnesota**. On Friday morning, snow depths included 5 inches in **Valentine, NE**, 9 inches in **Sioux Falls, SD** (actual storm total was 11 inches), and 7 inches in **St. Cloud, MN**. Snow accumulated as far south as **Madison, WI** (4 inches) and **Dubuque, IA** (6 inches) by week's end. Farther south, more heavy rain soaked areas from the **southeastern Plains** to **Missouri**. The weather system weakened as it trekked northeastward, producing only light to moderate showers from the **central Gulf coast** to the **Northeast** by week's end. As a result, dryness intensified in the **Southeast**, where **Columbia, SC** concluded its driest April on record (0.29 inches). In contrast, **Columbia, MO** notched its wettest April, and eighth wettest month, on record, with 11.69 inches.

International Weather and Crop Summary
HIGHLIGHTS

April 24 - 30, 1994

FSU-WESTERN: Spring grain planting in Russia and Ukraine was progressing ahead of last year's pace.

NORTHWESTERN AFRICA: Mostly dry weather limited moisture for late-filling winter grains but favored early harvesting.

EUROPE: Mild, dry weather favored spring planting and winter crop development.

SOUTH ASIA: A powerful tropical cyclone hit Bangladesh.

SOUTHEAST ASIA: Hot, dry weather hampered corn planting in Thailand.

SOUTH AFRICA: The first hard freeze, somewhat early, hit the corn belt.

EASTERN ASIA: Drier weather favored summer crop planting across the North China Plain.

AUSTRALIA: Dry weather favored eastern wheat planting, but topsoils are becoming somewhat dry.

SOUTH AMERICA: Early-week showers delayed summer crop harvesting across extreme southern Brazil, while dry weather aided harvesting in central Argentina.

CUBA: Widespread moderate to heavy rains (30-140 mm), heaviest in central and eastern areas, delayed sugarcane fieldwork.

April 1994
MONTHLY DATA FROM SELECTED FOREIGN CITIES
CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
****** = DATA NOT AVAILABLE***

COUNTRY	CITY	TEMPERATURE (C) AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	PRECIPITATION (MM) TOTAL	DPART F/NRM
NORWAY	OSLO	9	1	17	-6	5	1.7	70	22
SWEDEN	STOCKHOLM	12	2	20	-3	7	2.6	38	7
FINLND	HELSINKI	10	1	18	-4	5	2.5	65	28
U KING	GLASGOW	11	3	16	-2	7	-1.2	81	18
	EDINBURGH	11	3	18	-1	7	-0.1	46	5
	BIRMINGHAM	12	4	22	-1	8	0.5	69	21
	LONDON	12	4	22	-2	8	0.3	84	30
IRELND	DUBLIN	11	4	19	1	8	-0.2	71	20
ICELND	REYKJAVIK	5	-1	8	-6	2	-1.0	37	-21
DENMRK	COPENHAGEN	12	4	19	-2	8	1.1	47	9
LUXEMB	LUXEMBOURG	12	5	25	-2	8	0.5	61	2
SWITZL	ZURICH	12	4	24	0	8	-0.1	94	2
	GENEVA	12	5	25	-1	8	-0.3	80	15
FRANCE	PARIS/ORLY	14	6	28	-1	10	***	60	**
	STRASBOURG	14	5	27	-1	10	0.2	40	-7
	BOURGES	14	5	27	-2	9	-0.3	67	17
	BORDEAUX	15	7	28	0	11	0.1	127	60
	TOULOUSE	14	7	26	1	10	-0.7	109	47
	MARSEILLE	16	8	25	1	12	-0.7	44	1
SPAIN	VALLADOLID	16	3	28	-3	10	-0.1	10	-33
	MADRID	18	6	31	-3	12	-0.3	38	-6
	SEVILLE	24	10	32	4	17	-0.1	25	-34
PORTUG	LISBON	20	11	29	8	15	0.1	21	-30
GERMNY	HAMBURG	13	6	23	-1	9	2.1	58	8
	BERLIN	14	5	24	-1	10	1.1	62	21
	DUSSELDORF	14	5	23	-1	10	-0.2	90	39
	LEIPZIG	14	5	25	-1	9	1.0	109	68
	DRESDEN	13	5	25	-1	9	0.6	60	14
	STUTTGART	12	4	25	-1	8	-0.6	93	39
	NURNBERG	13	3	25	-2	8	-0.2	81	33
AUSTRI	VIENNA	15	6	24	-1	11	0.6	91	48
	INNSBRUCK	14	3	25	-3	9	0.0	81	20
CZECH	PRAGUE	13	3	24	-2	8	0.2	44	6
POLAND	WARSAW	13	5	22	-2	9	1.3	91	58
	LODZ	13	4	22	-3	9	1.4	75	25
	KATOWICE	14	3	23	-2	9	1.5	87	33
	PRZEMYSL	14	5	22	-1	10	1.4	39	-8
HUNGAR	BUDAPEST	16	7	25	-1	12	0.7	69	31
F YUGO	BELGRADE	18	9	26	4	14	1.4	63	4
ROMANI	BUCHAREST	19	7	26	0	13	2.0	36	-9
BULGAR	SOFIA	18	8	27	1	13	2.3	83	27
ITALY	MILAN	18	8	26	-1	13	0.7	64	-24
	VERONA	16	6	25	-1	11	-0.9	108	43
	VENICE	16	8	24	3	12	0.0	73	4
	GENOA	17	11	22	6	14	-1.2	55	-31
	ROME	18	9	26	1	13	0.0	77	26
	NAPLES	18	10	24	4	14	0.5	156	80
GREECE	THESSALONIKA	20	10	26	3	15	0.5	57	21
	LARISSA	21	9	28	1	15	0.7	53	23
	ATHENS	21	12	27	6	17	0.4	21	5
TURKEY	ISTANBUL	19	10	29	5	15	4.0	43	5
	ANKARA	20	4	30	-5	12	0.2	22	-4
CYPRUS	LARNACA	24	13	32	8	19	1.7	4	-16
ESTONI	TALLINN	11	2	21	-3	6	3.0	58	24
FSU	ST.PETERSBRG	12	4	22	-2	8	3.5	25	-7
LITHUA	KAUNAS	13	5	20	-1	9	2.6	68	27
FSU	MINSK	13	5	20	-3	9	2.7	55	13
	KAZAN	9	0	21	-10	4	-0.2	3	-32
	MOSCOW	12	3	20	-4	7	1.5	21	-21
	YEKATERINBURG	10	2	19	-9	6	1.5	16	-12
	OMSK	7	-2	21	-17	3	-0.9	14	-7
	KUSTANAY	9	-1	23	-13	4	-1.0	17	-6
	KRASNOYARSK	5	-2	16	-12	2	0.6	54	25
	NOVOSIBIRSK	5	-2	19	-13	2	2.3	10	-3
	BARNAUL	8	-1	20	-11	3	0.5	24	-1
	KHABAROVSK	8	-2	16	-8	3	-1.4	58	15
	VLADIVOSTOK	8	2	16	-3	5	0.8	34	-32
	KIEV	16	7	23	2	11	2.7	27	-20
	LVOV	14	5	22	-2	9	1.5	24	-24
	KIROVOGRAD	16	6	25	1	11	2.9	45	14

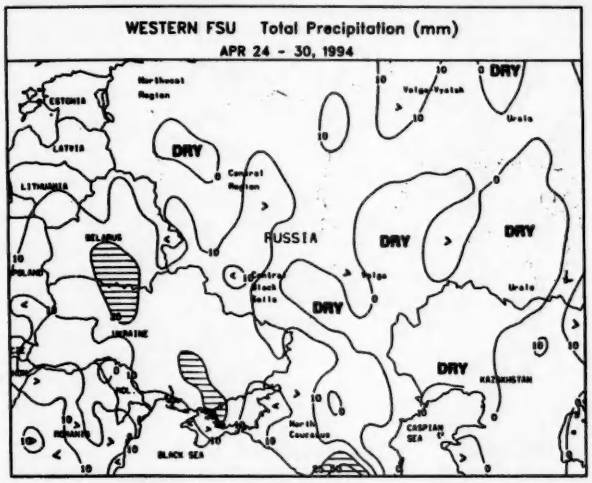
Based on Preliminary Reports

April 1994

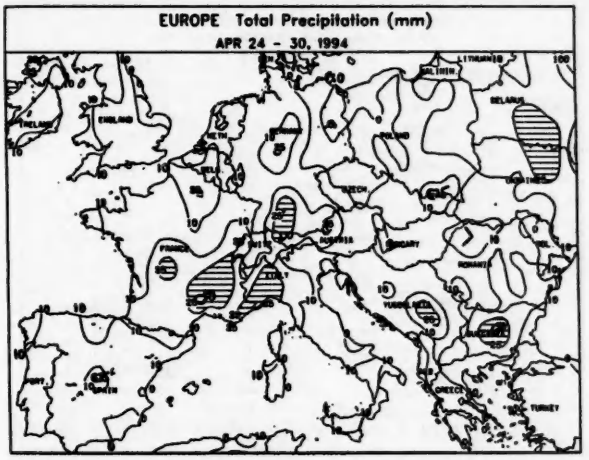
COUNTRY	CITY	TEMPERATURE (C) AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	PRECIPITATION (MM) TOTAL	DPART F/NRM
FSU	ODESSA	14	8	22	3	11	2.2	6	-27
	YALTA	17	10	25	3	13	2.9	22	-11
	VORONEZH	14	4	23	-5	9	1.2	10	-28
	SARATOV	12	4	24	-3	8	1.3	8	-20
	KHARKOV	15	6	24	0	11	1.8	42	6
	VOLGOGRAD	16	4	26	-3	10	1.3	7	-17
	ROSTOV	18	7	27	0	12	1.6	61	15
	ASTRAKHAN	18	6	30	-4	12	0.9	0	-17
	KRASNODAR	21	8	29	0	14	2.7	48	-5
	ORENBURG	11	0	25	-12	6	-1.1	9	-14
	TSELINOGRAD	10	1	22	-8	5	2.3	20	6
	KARAGANDA	12	0	22	-10	6	0.4	13	-8
	TASHKENT	19	7	33	-1	13	-2.6	72	12
	ASHKHABAD	23	9	37	0	16	-0.9	8	-34
SYRIA	DAMASCUS	27	8	34	0	18	1.8	0	-13
ISRAEL	JERUSALEM	24	12	35	3	18	2.3	20	-14
PAKIST	KARACHI	34	22	40	14	28	-0.2	0	-5
INDIA	AMRITSAR	32	16	40	3	24	-0.7	22	-4
	NEW DELHI	35	19	40	13	27	-1.8	10	-4
	AHMEDABAD	39	24	42	22	32	0.2	0	-2
	INDORE	38	21	42	17	29	-0.6	6	3
	CALCUTTA	35	24	39	18	30	-1.0	72	38
	VERAVAL	31	23	37	20	27	0.2	0	0
	BOMBAY	33	24	36	22	28	-0.1	2	2
	POONA	36	19	39	15	27	-1.6	13	1
	HEGAMPET	37	24	41	21	30	-0.7	34	14
	VISHAKHAPATNAM	32	27	34	24	30	***	22	**
	MADRAS	36	26	39	24	31	0.3	1	-10
	MANGALORE	34	25	35	21	29	-0.1	98	58
H KONG	KINGS PEAK	28	22	32	18	25	***	7	**
N KREA	PYONGYANG	19	4	26	-1	11	2.9	27	-35
S KREA	SEOUL	21	10	29	6	16	5.3	45	-23
JAPAN	SAPPORO	11	4	20	-1	7	0.9	56	-7
	NAGOYA	21	11	28	4	16	1.9	86	-66
	TOKYO	20	12	24	4	16	1.8	50	-73
	YOKOHAMA	20	12	24	4	16	2.3	83	-60
	KYOTO	22	11	28	3	16	2.5	138	-25
	OSAKA	21	12	26	5	17	2.2	94	-44
THAILN	PHETCHABUN	37	24	40	21	31	0.5	29	-45
	BANGKOK	36	27	38	22	31	0.9	154	85
MALAYS	KUALA LUMPUR	33	24	35	23	29	1.7	140	-132
VIETNM	HANOI	29	24	37	20	26	2.4	22	-59
CHINA	HARBIN	15	1	26	-6	8	2.4	1	-24
	HAMI	22	6	30	-2	14	0.7	8	6
	LANCHOW	21	7	35	1	14	2.5	3	-17
	BEIJING	23	11	29	6	17	3.5	2	-25
	TIENTSIN	23	11	29	5	17	2.6	9	-17
	LHASA	16	2	19	-3	9	0.8	4	-2
	KUNMING	26	12	31	10	19	3.1	0	-26
	CHENGCHOW	22	11	35	2	17	1.2	95	48
	YEHCHANG	22	14	34	6	18	0.7	133	38
	HANKOW	22	14	34	7	18	2.0	108	-24
	CHUNGKING	23	17	35	11	20	***	35	**
	CHIHKIANG	22	14	33	7	18	1.7	213	49
	WU HU	21	14	33	8	17	***	100	**
	SHANGHAI	19	12	32	7	16	***	86	**
	NANCHANG	22	16	31	9	19	1.8	254	32
	TAIPEI	27	21	34	16	24	3.4	60	-108
	CANTON	28	22	32	17	25	3.1	209	27
	NANNING	29	22	35	17	25	3.4	5	-100
CNRY I	LAS PALMAS	23	16	34	12	19	0.4	16	11
MOROCC	CASABLANCA	20	11	31	9	15	-0.4	3	-35
	MARRAKECH	26	12	35	7	19	1.6	0	-34
ALGERI	ALGER	20	8	25	4	14	-0.3	61	-20
	BATNA	18	4	26	-3	10	-1.5	8	-19
TUNISI	TUNIS	21	11	29	7	16	0.4	13	-26
NIGER	NIAMEY	41	28	45	23	35	0.9	29	24
MALI	TIMBUKTU	39	24	43	18	32	1.0	0	-2
	BAMAKO	40	27	45	24	34	1.6	16	-4
MAURIT	NOUARCHOTT	32	19	40	15	25	0.6	0	0
SENEGL	DAKAR	26	19	34	17	22	0.9	0	0
CHAG A	DIEGO GARCIA	30	26	33	24	28	-0.1	183	2
LIBYA	TRIPOLI	25	12	35	8	18	-0.4	93	76
	BENGHAZI	25	15	35	8	20	0.7	11	5
EGYPT	CAIRO	30	16	41	11	23	1.5	0	-2
	ASWAN	36	20	43	3	28	1.1	0	0
ETHIOP	ADDIS ABABA	25	10	29	-2	18	0.0	70	-14

COUNTRY	CITY	TEMPERATURE (C) AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	PRECIPITATION (MM) TOTAL	DPART F/NRM
KENYA	NAIROBI	26	14	29	9	20	-0.4	115	-42
TANZAN	DAR ES SALAAM	30	23	34	19	26	-0.2	263	-10
GABON	LIBREVILLE	31	23	33	21	27	0.1	171	-175
TOGO	LOME	32	**	34	23	**	***	73	-27
B FASO	OUAGADOUGOU	40	28	42	20	**	***	3	-19
IVRY C	ABIDJAN	32	26	34	22	29	0.8	123	-22
MOZAMB	MAPUTO	29	20	33	16	24	0.7	73	18
ZAMBIA	LUSAKA	28	**	32	10	**	***	24	7
ZIMBAB	HARARE	26	13	30	8	20	1.6	2	-42
S AFRI	PRETORIA	25	12	29	7	19	1.1	33	-21
	JOHANNESBURG	22	9	26	3	16	0.5	23	-29
	BETHAL	23	7	27	1	15	0.2	21	-17
	DURBAN	26	18	32	12	22	0.6	15	-58
	CAPE TOWN	24	13	35	5	19	1.7	33	-5
CANADA	TORONTO	13	1	26	-6	7	1.2	96	32
	MONTREAL	11	0	22	-8	5	-0.3	100	25
	WINNIPEG	10	-3	26	-14	4	-0.2	19	-18
	REGINA	12	-2	27	-8	5	0.9	8	-13
	SASKATOON	12	-2	24	-10	5	1.0	8	-11
	LETHBRIDGE	14	-2	26	-12	6	0.4	17	-19
	CALGARY	13	-1	23	-9	6	1.7	13	-12
	EDMONTON	13	0	26	-7	7	1.6	8	-14
	VANCOUVER	14	8	19	4	11	2.1	66	-10
MEXICO	GUADALAJARA	**	**	34	9	**	***	13	4
	MEXICO CITY	**	**	31	9	**	***	**	**
	ACAPULCO	32	22	34	19	27	0.0	0	-5
BERMUD	ST. GEORGES	24	19	26	16	21	2.3	78	-3
BAHAMA	NASSAU	29	22	32	18	25	1.9	30	-21
CUBA	HAVANA	29	22	34	19	26	0.9	53	3
JAMAIC	KINGSTON	32	24	33	22	28	1.0	14	-22
P RICO	SAN JUAN	30	23	32	21	26	0.1	70	-26
GUADEL	RAIZET	31	22	33	19	27	1.1	18	-54
MARINQ	LAMENTIN	30	22	32	18	26	0.8	25	-95
BARBAD	BRIDGETOWN	31	24	31	22	27	1.0	16	-40
TRINID	PORT OF SPAIN	32	23	34	20	28	0.9	26	-10
COLOMB	BOGOTA	19	10	21	7	15	1.0	114	12
VENEZU	CARACAS	30	22	35	16	26	0.3	27	5
F GUIA	CAYENNE	29	23	31	21	26	-0.1	666	263
BRAZIL	FORTALEZA	**	**	30	20	**	***	***	**
	RECIFE	**	**	29	22	**	***	***	**
	BELO HORIZONTE	27	18	29	16	23	0.6	65	2
	CAMPO GRANDE	29	19	33	13	25	0.8	103	13
	FRANCA	27	18	29	11	22	2.0	93	12
	LONDRINA	**	**	31	12	**	***	***	**
	SANTA MARIA	**	**	34	8	**	***	***	**
	PORTO ALEGRE	25	15	34	9	20	0.1	125	21
PERU	LIMA	25	18	28	17	22	1.1	0	0
BOLIVI	LA PAZ	14	3	17	2	8	-0.2	59	29
CHILE	SANTIAGO	23	8	29	4	16	1.4	0	-10
ARGENT	IGUAZU	28	17	33	10	23	***	114	**
	FORMOSA	27	19	34	12	23	0.5	156	0
	CERES	24	14	33	8	19	0.0	115	35
	CORDOBA	23	12	33	4	17	0.1	98	45
	RIO CUARTO	22	11	29	3	16	-0.1	54	6
	ROSARIO	23	12	32	5	18	0.5	173	61
	BUENOS AIRES	22	12	28	3	17	0.2	113	31
	SANTA ROSA	22	9	31	-1	16	0.4	29	-22
	TRES ARROYOS	20	9	28	1	14	0.1	24	-63
N CALD	NOUMEA	26	21	33	19	24	-0.3	47	-65
FIJI	NAUSORI	28	23	30	20	26	0.5	47	-354
SAMOA	PAGO PAGO	31	26	33	24	29	1.3	562	255
TAHITI	PAPEETE	32	24	33	22	28	1.2	56	-85
N ZEAL	AUCKLAND	19	13	22	7	16	-0.7	**	**
	WELLINGTON	18	13	22	6	15	***	22	**
PA N G	PORT MORESBY	29	24	31	22	26	-0.6	76	-26
AUSTRL	DARWIN	32	24	34	20	28	-0.6	19	-62
	MOREE	26	12	29	6	19	-0.6	3	-41
	BRISBANE	24	16	27	10	20	-1.7	53	-51
	PERTH	27	15	35	11	21	1.9	3	-44
	CEDUNA	25	8	35	2	17	-1.1	0	-20
	ADELAIDE	22	11	30	7	16	-0.5	5	-33
	MELBOURNE	20	9	29	3	15	-0.9	32	-17
	WAGGA	22	8	28	3	15	-0.8	19	-31
	CANBERRA	20	6	25	4	13	-0.5	70	17
INDONE	DJAKARTA	**	**	33	22	**	***	**	**
PHILIP	MANILA	34	28	36	24	31	1.9	14	-11

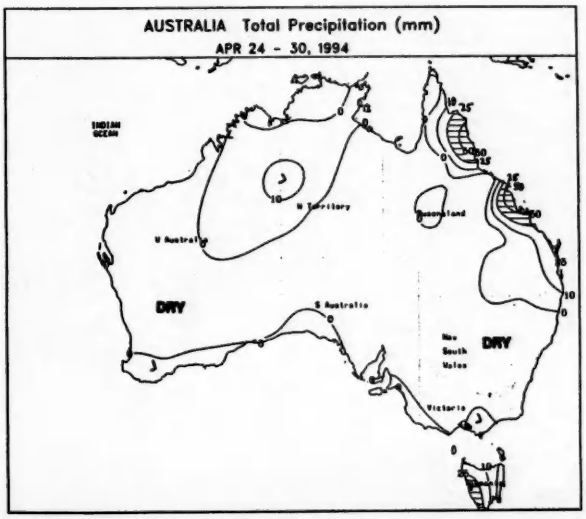
Based on Preliminary Reports



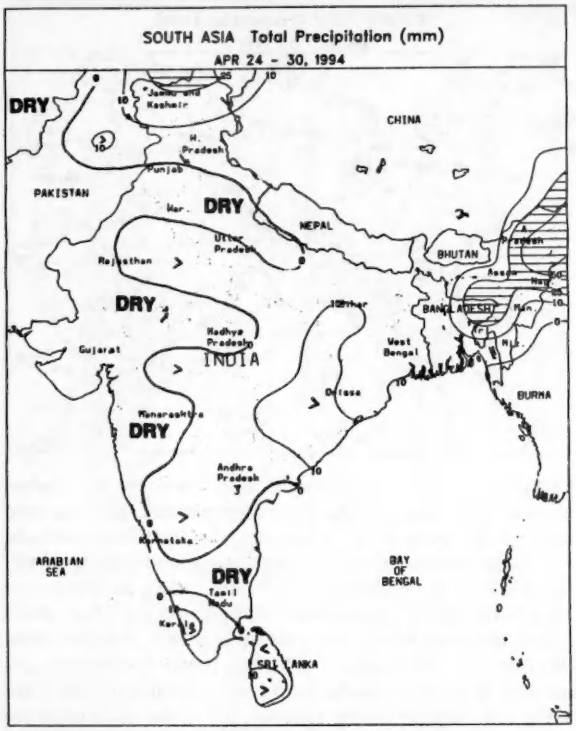
FSU-WESTERN: Light to moderate rain (10-25 mm, with local amounts in excess of 25 mm) covered most of Ukraine, North Caucasus in Russia, and Belarus, providing beneficial moisture for spring grain emergence and winter grains in the vegetative stage. Winter grains were jointing in Ukraine and North Caucasus, and were mostly tillering over the remainder of Russia, Belarus, and the Baltic States. Reports indicated spring grain planting in Russia and Ukraine was progressing rapidly, ahead of last year's pace. By April 25 in Ukraine, 80 percent of sugar beets were planted while sunflower planting was about 40 percent complete. Corn planting was well underway. In Russia, spring planting was progressing northward. Dry weather in Central Russia (Central Black Soils Region and Volga Valley) allowed rapid planting. Little, if any, precipitation (less than 10 mm) covered southwestern Ukraine and Moldova, where persistent dryness has increased stress on winter grains and hampered spring crop germination. Weekly average temperatures were generally 1-3 degrees Celsius (C) above normal over the region, promoting crop growth.



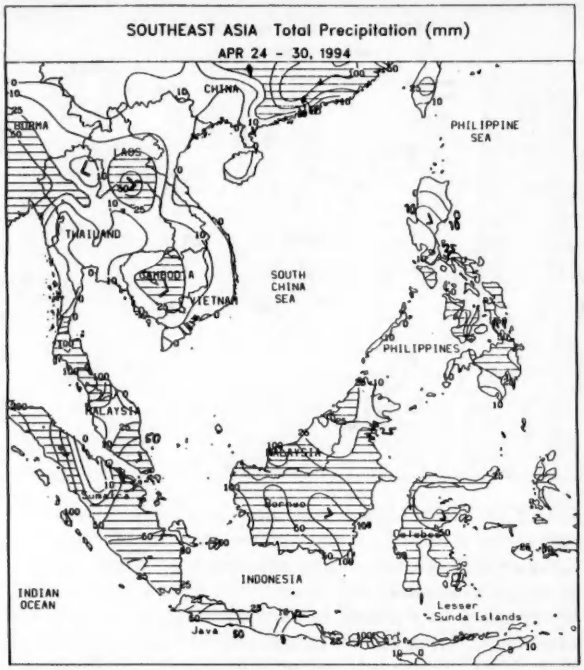
EUROPE: Early-week showers from France to the Balkan countries gave way to a drying trend by midweek, allowing more rapid spring crop planting. Significant rain (10-50 mm) continued to provide adequate moisture for grain and oilseed planting as well as for winter crop development in France, Italy's Po Valley, and western Germany. Temperatures averaged 4-6 degrees C above normal over most of Germany, hastening growth of winter grains and oilseeds. Widespread 10-30 mm rainfall in Bulgaria and scattered areas of Romania helped newly-planted spring crops. While drier weather during the latter half of the week promoted fieldwork in most areas, scattered and highly variable showers (1-25 mm) in Spain brought limited relief for heading to filling winter crops. Generally mild spring weather prevailed throughout Europe.



AUSTRALIA: Mostly dry weather prevailed across the eastern summer crop areas, aiding harvesting. Light, scattered rain (1-10 mm) fell across portions of eastern Queensland, increasing topsoil moisture for wheat planting. However, topsoils are still dry across most wheat areas and rain is needed to boost topsoil moisture for planting to begin in earnest. Temperatures averaged 1-3 degrees C above normal across most wheat areas. Showers (20-90 mm) dotted the northeastern coast of Queensland, favoring sugarcane.

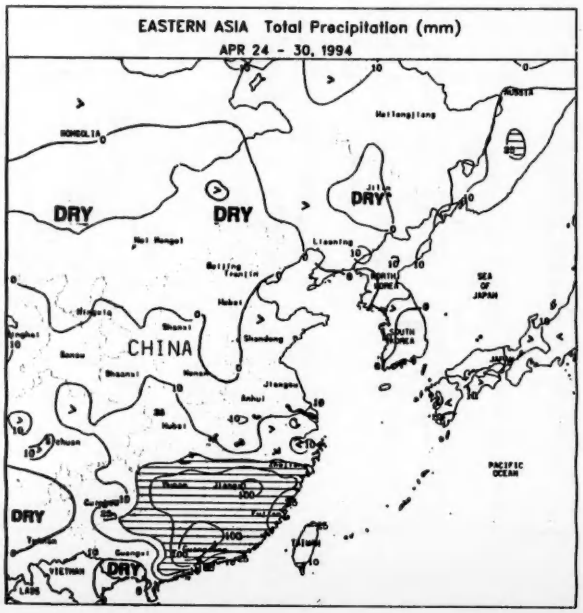


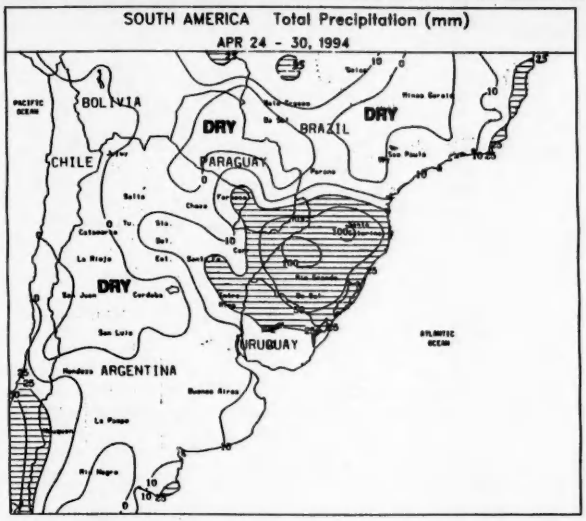
SOUTH ASIA: A tropical cyclone, with sustained winds of 135 knots, made landfall near Cox's Bazar, Bangladesh on May 2. The likely agricultural impacts include coastal flooding, disruption of winter wheat and rice harvests and delays in main-season rice planting. *(More details will be provided in next week's Bulletin).* In the week ending April 30, moderate showers (25-50 mm or more) fell in India's eastern states, but most other crop areas experienced only light (less than 10 mm), scattered rain. Winter harvests are winding down, with pre-planting activities underway across the south.



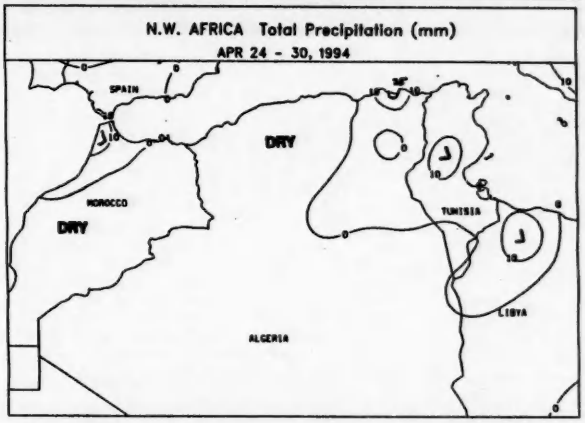
SOUTHEAST ASIA: Scattered showers (25-50 mm or more) continued over Thailand's northern and eastern rice areas, but hot, mostly dry weather dominated primary corn areas. Rain is needed soon in central Thailand for main-season grain planting, usually underway by early May. Moderate to heavy showers (25-50 mm or more) continued southward along the Malay Peninsula, although some dry pockets developed over primary rice and palm oil areas. In contrast, unseasonably heavy rain (50-74 mm) persisted over sections of Java, slowing rice harvests. In the Philippines, moderate to heavy rain (25-50 mm or more) benefited main-season rice and corn throughout the islands.

EASTERN ASIA: Drier weather spread across the North China Plain, after previous rain boosted topsoil moisture for summer crop planting. Dry weather continued across Manchuria, where rain is needed for spring fieldwork. While the main rainy season is still a month away, spring rainfall across Manchuria has been less than 50 percent of normal. Light rain (5-15 mm) across eastern Sichuan aided summer crops. Widespread showers (20-80 mm) covered southern China, except for Guizhou and Guangxi where rainfall was spotty (1-30 mm). So far this season, rainfall has been adequate for replenishing rice irrigation supplies. Heavier showers (100-170 mm) fell across interior Guangdong, causing local flooding. Temperatures averaged 2-4 degrees C above normal across most of eastern China and 1-3 degrees C below normal across Manchuria.

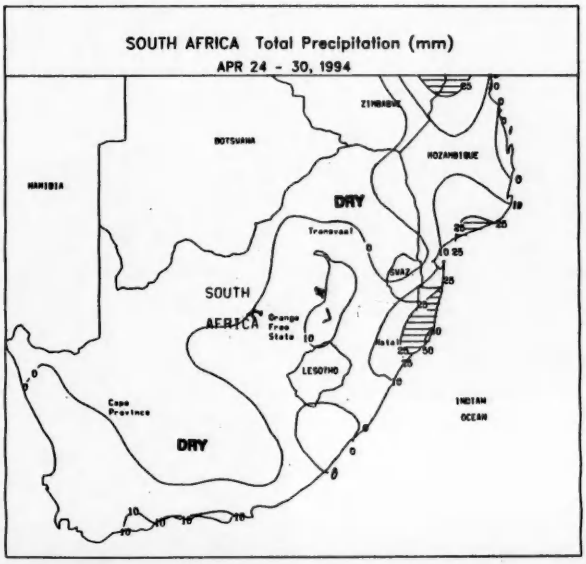




SOUTH AMERICA: In southern Brazil, early-week showers (50-125 mm) delayed summer crop harvesting across Santa Catarina and Rio Grande do Sul, while drier weather prevailed later in the week. Elsewhere in Brazil, mostly dry weather with widely scattered showers (10-40 mm) allowed summer crop harvesting to progress. Southern Paraguay received light to moderate showers (10-40 mm) slowing fieldwork. In central Argentina, mostly dry weather favored maturing second-crop soybeans and main-season summer crop harvesting. Light rain (1-10 mm) increased topsoil moisture across southern Buenos Aires province for winter wheat planting. Northern Argentina received light to moderate rain (8-35 mm), slowing cotton harvesting. Periodic rains across the northern cotton areas may have caused lower cotton quality. Temperatures averaged 3-7 degrees C above normal across central Argentina, southern Paraguay, and southern Brazil, favoring dry down of summer crops.



NORTHWESTERN AFRICA: Little, if any, precipitation (less than 5 mm) covered winter grains in Morocco, Algeria, and Tunisia. One coastal location in eastern Algeria received 35 mm of rain. While the dry weather limited moisture for those winter grains still in the filling stage, it favored maturing crops and early harvest activities. Weekly average temperatures were 3-5 degrees C above normal in Morocco, where hot weather on some days (maximum temperatures ranging from 34 to 35 degrees C) covered crop areas. Unseasonably cool weather (weekly average temperatures ranging from 3 to 5 degrees C below normal) continued over drought-stressed winter grain areas in Algeria and Tunisia.



SOUTH AFRICA: The first hard freeze of the season covered the western Orange Free State as minimum temperatures fell below -2 degrees C. Frost was also scattered throughout corn areas in adjacent regions. While most areas normally experience their first frost in late April to early May, temperatures of -2 or below are not expected in the southern corn belt until mid- to late-May. Light to moderate rain (8-19 mm) lingered in eastern corn areas, but dry weather continued elsewhere, favoring maturing corn but reducing topsoil moisture for winter wheat germination. Winter wheat planting was likely underway in southern Cape Province following last week's beneficial rain.

The Weekly Weather and Crop Bulletin is published weekly and jointly prepared by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Agriculture (USDA). Publication began in 1872 as the Weekly Weather Chronicle. It is issued under general authority of the Act of January 12, 1895 (44-USC 213), 53rd Congress, 3rd Session. NOAA is responsible for managing, printing, and distributing the bulletin. The contents may be reprinted freely, with proper credit.

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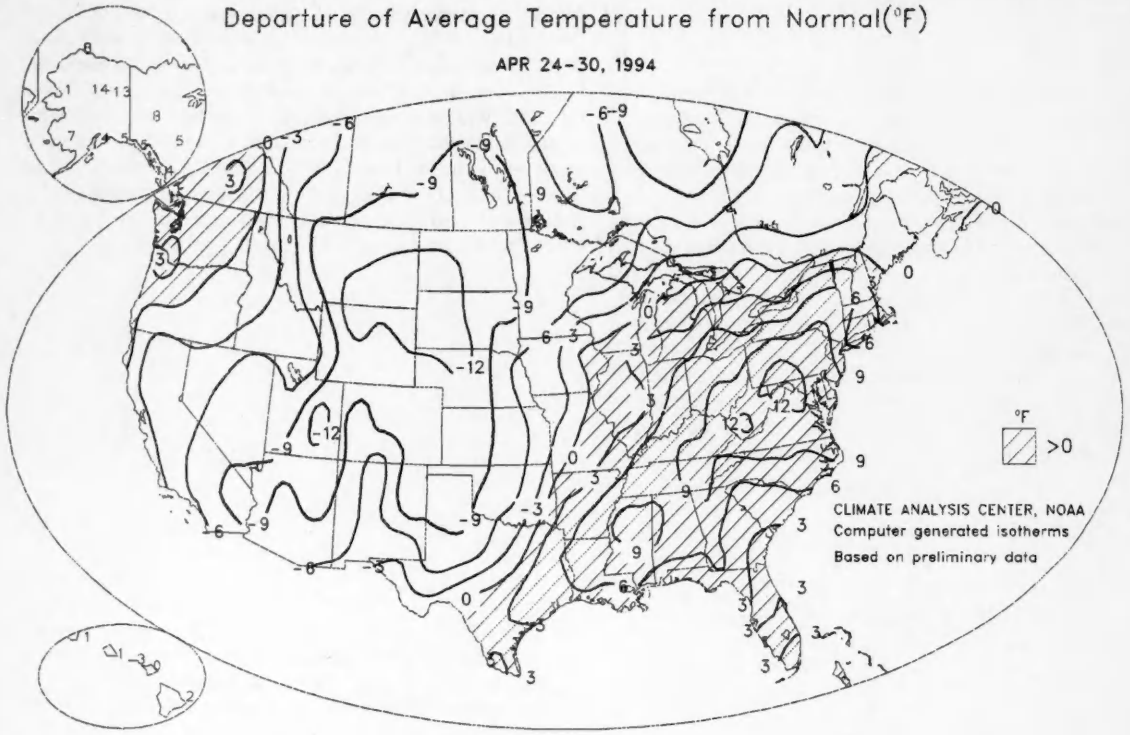

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